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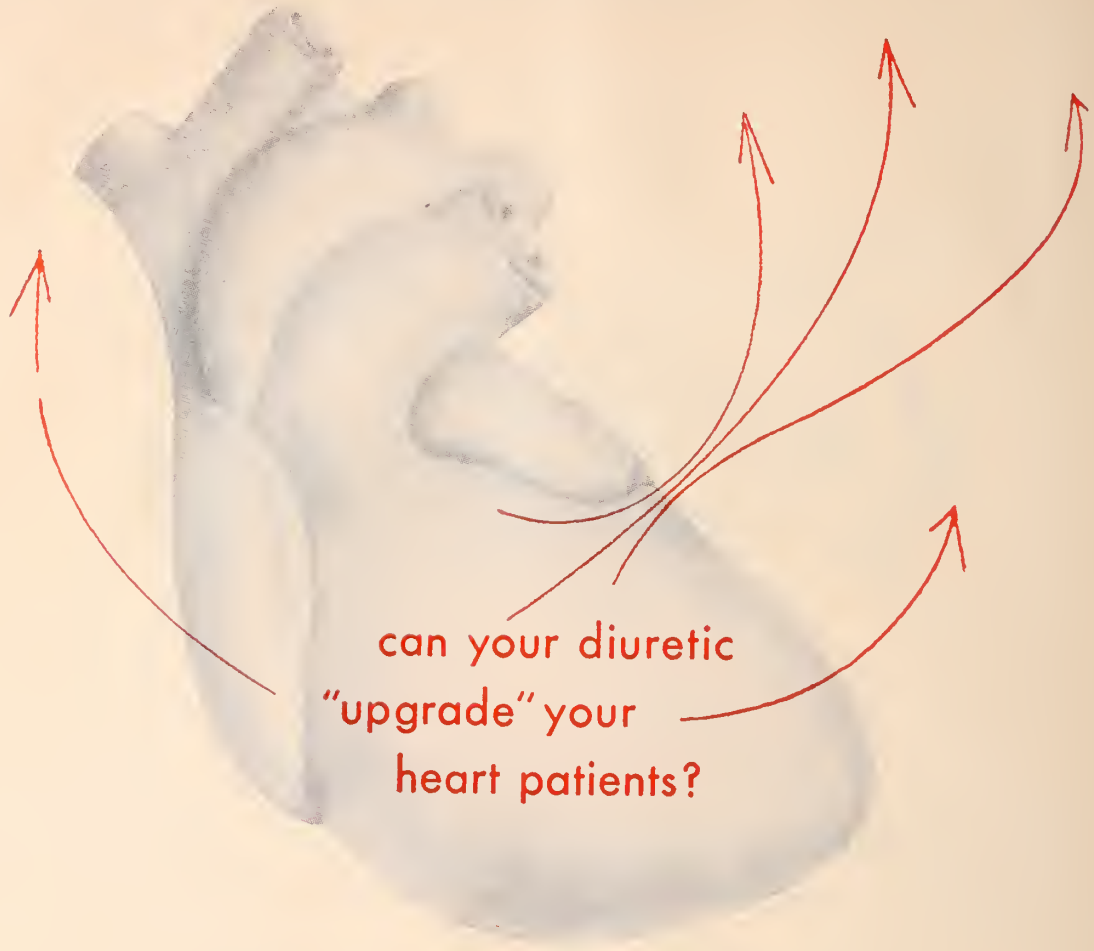
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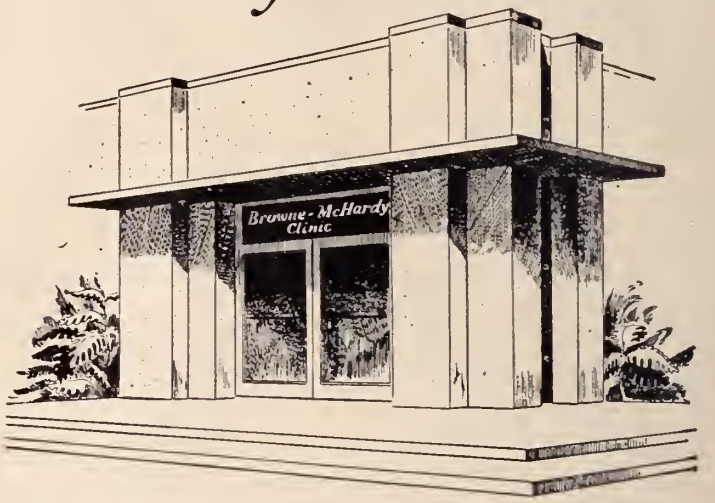
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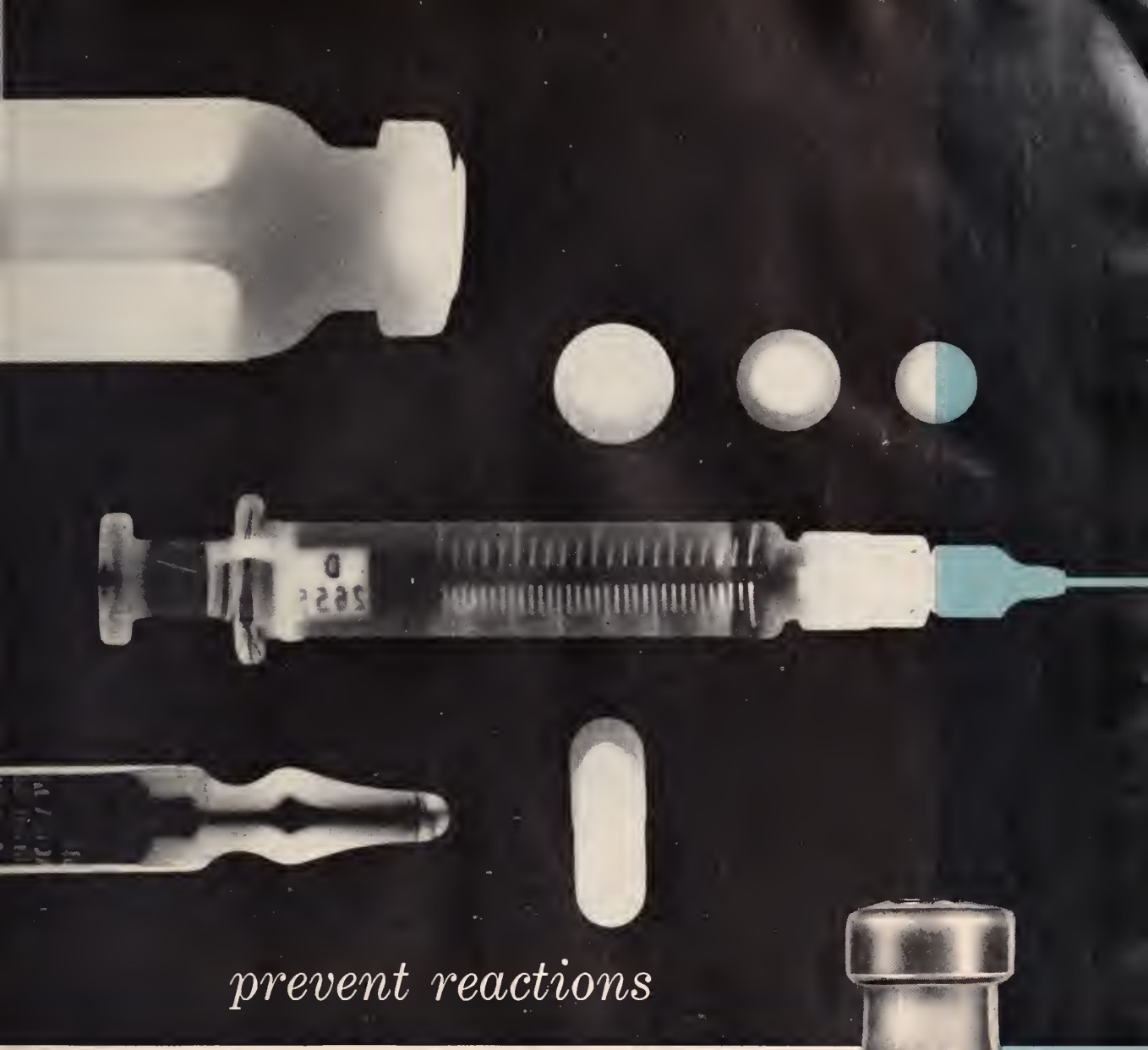
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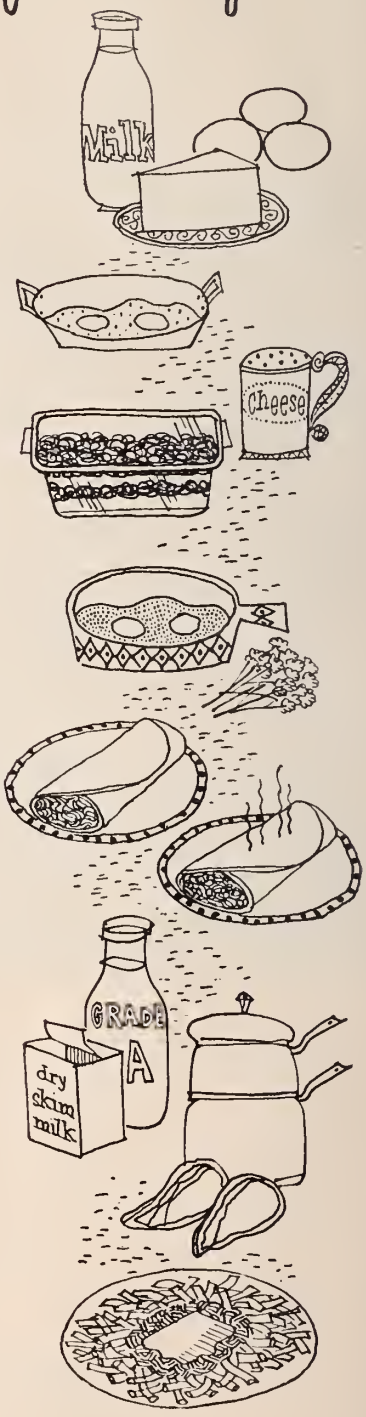
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Your patient may like his eggs poached in tomato juice. Then serve them in a soup bowl with a frill of chopped parsley on top.

In these, the trio plays accompaniment—

Ham 'n' egg rolls come hot or cold. For hot, roll a warm slice of ham around eggs that have been scrambled with a pinch of savory. For cold, roll ham around egg salad mixed with cottage cheese.

Oyster stew can be creamy without cream when the milk is bolstered with dry skim milk powder. A pinch of thyme and some chopped parsley add savor.

Broiled salmon or tuna-burgers nestle nicely in a nest of noodles. A slice of cheese on top adds color and broils to a bubbling brown.

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Cooked Pork Chops, Ham, and Pork Sausage
Nutrients and Calories Provided by 3-Ounce Portions

TABLE I	Protein Gm.	Thiamine mg.	Niacin mg.	Riboflavin mg.	Iron mg.	Phosphorus mg.	Calories
Pork Chops, without bone, cooked, 3 oz.[2]	20	0.71	4.3	0.20	2.6	200	284
Ham, without bone, cooked, 3 oz.[2]	20	0.45	4.0	0.20	2.6	202	338
Pork Sausage, cooked, 3 oz.[3]	14	0.42	2.8	0.20	2.1	139	396

3.5 ounces of fresh pork loin, equivalent to approximately 3 ounces of cooked loin, contains 0.47 mg. pantothenic acid;[4] 0.10 mg. pyridoxine;[4] 0.005 mg. biotin;[5] 36 mg. inositol;[4] 0.08 mg. folic acid;[4] 0.0027 mg. vitamin B_{12};[6] 63 mg. chlorine;[7] 0.1 mg. copper;[7] 20 mg. magnesium;[7] 280 mg. potassium;[7] 70 mg. sodium;[7] and 0.01 mg. manganese.[7]

TABLE II — Nutrients and Calories of Cooked Pork Chops (3 ounces) Expressed as Percentages of Recommended Daily Dietary Allowances[8]

Percentages of Allowances for:	Protein	Thiamine	Niacin	Riboflavin	Iron	Phosphorus	Calories
Girls, 13-15 years of age; weight, 108 lb.; height, 63 inches.	25%	55%	33%	10%	17%	15%	11%
Women, 25 years of age; weight, 121 lb.; height, 62 inches.	31%	59%	36%	14%	22%	17%	12%
Pregnant Women (3rd trimester)	25%	47%	29%	10%	17%	13%	11%

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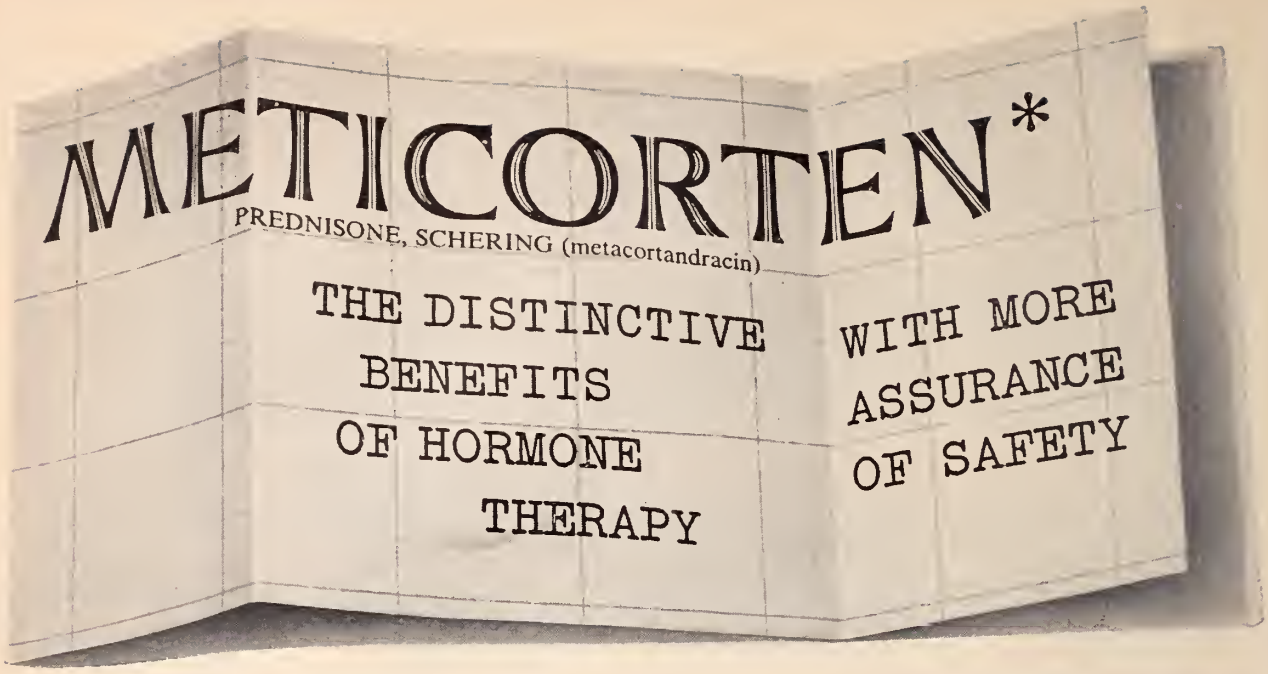


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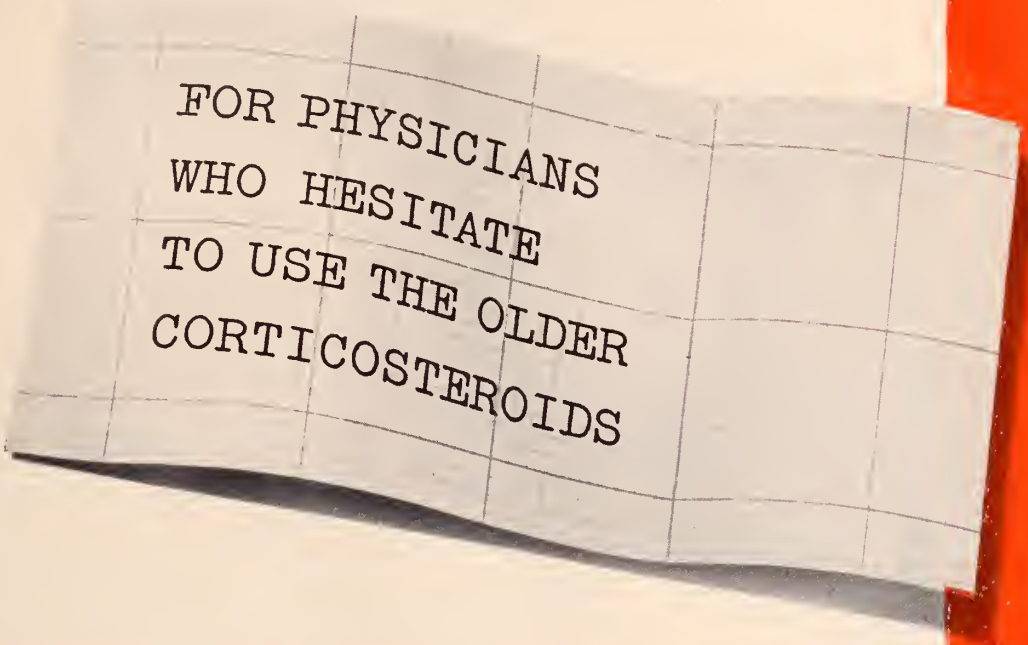
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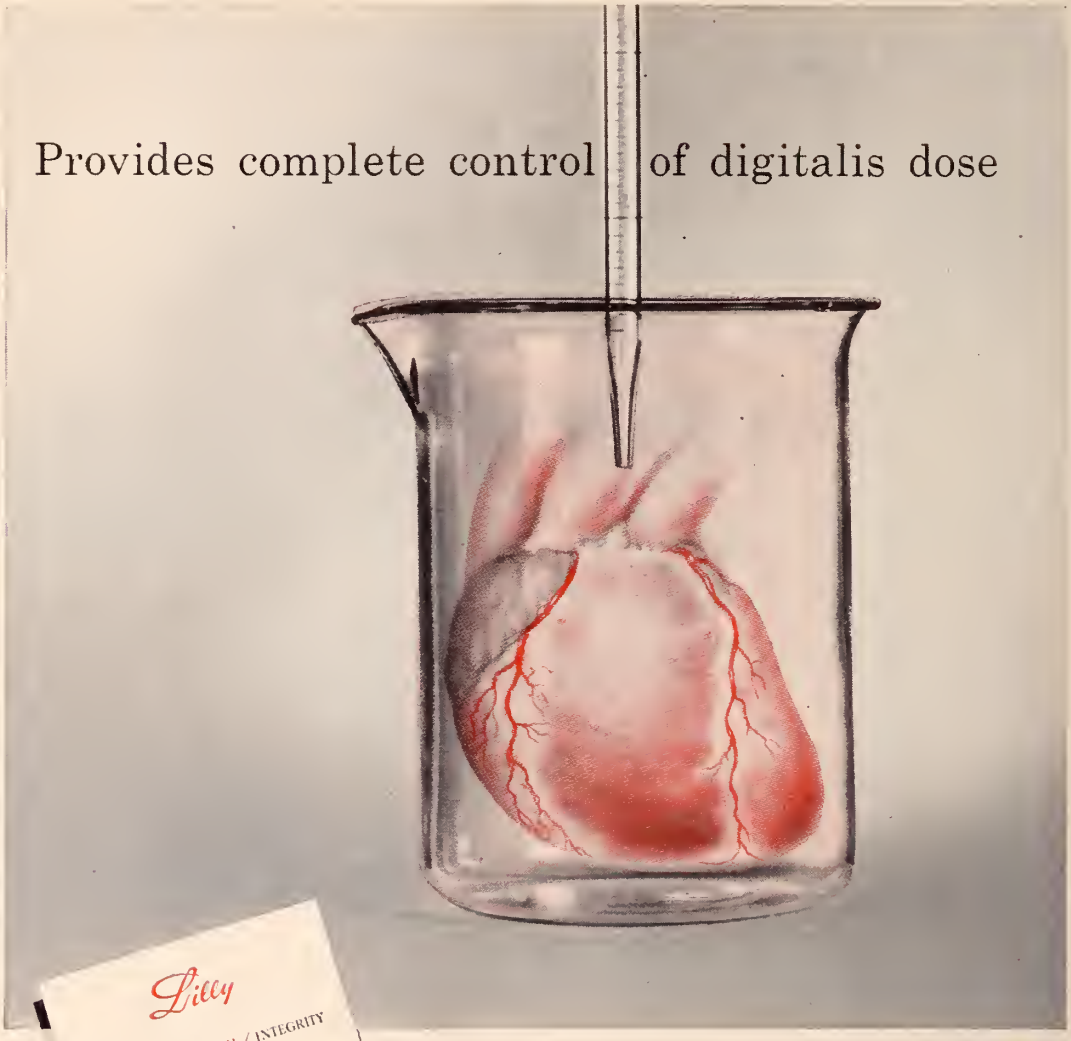
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BIG GOVERNMENT AND SOME OF ITS EFFECTS ON PRIVATE PRACTICE *

F. J. L. BLASINGAME, M. D. †
WHARTON, TEXAS

Shakespeare observed that "There is a tide in the affairs of men"—There can be little room for debate that there is a surging tide in the affairs of men of our time; and our country is deeply involved, as is each of her citizens—inescapably involved—whether he chooses to be or not to be, whether he be rich or poor, bright or dumb, different or indifferent.

One of the features of our time is Big Government; and in this particular feature, America leads all other nations. This Bigness is of fairly recent origin—twenty-five to thirty years' duration, is deeply entrenched, and appears to be getting bigger. This increase in size is the result of changes in our society—perhaps as our country has moved from a simple agrarian society to more of an industrial, urban nation.

Too, in my judgment, there are changes in ourselves—in the faith, the motives, the ideals of our citizens. In the last analysis, our Government is but a reflection of our people.

This Bigness of Government influences almost every aspect of our Society, including American medicine as we have known it, and has certain implications concerning the institution of private practice, which has for years been the prevailing mode of delivery of medical services to our citizens. Is the institution of private practice in jeopardy? I think so; and I believe we are in danger of losing the great values we have cherished. It is timely and in the public interest that we review the situation and point up the signs and probable ill-effects that could result.

To return to the question of Big Government, let us recall that our nation was originally founded on the proposition that Governments are for the people, potentially dangerous, and should be small, and limited by law. Our forefathers came principally from Europe where governments had preyed upon the people, taxed them, governed them rigidly, and limited the individual responsibility and personal freedom. Shortly, after establishing themselves on this land, except for an original effort of socialism which failed miserably, the concept grew that men were equal unto God, free, and responsible as individuals. This challenging way of living, though not easy, was found to be productive and to bear fruit. The Government of Great Britain decided to gather a goodly share of the profits and launched on a program of high taxes and stouter regulations on trade. The Revolutionary War was the result and established our land.

A limited government came into being with its checks and balances between the Executive, Legislative, and Judiciary. The

---

* Address presented at the Seventy-fifth Annual Meeting of the Louisiana State Medical Society, in New Orleans, May 2, 1955.

† Trustee, American Medical Association, and President, Texas State Medical Association.

results are history; a nation grew in wealth and developed an industrial plant such as had never been seen on the face of this earth. Personal freedom, which has been a scarce ingredient in human history, reached an unprecedented high level; and the attendant values of life for the vast majority of our citizens have been legion.

However, in January, 1913, a break-through occurred in the passage of the 16th Amendment to our Constitution—the income tax amendment; and it has changed things!

This break-through was the legal basis for the federal government to remove income from the individual and place it in the hands of the state and reflected a fundamental alteration in philosophy—which for the first time in our land gave expression to the idea that it was in the public interest to take wealth from individual citizens and place it at the disposal of government. The use of this law, more than any other mechanism, has altered our very society. I recommend for your serious reading a thoughtful book, *The Income Tax, The Root of All Evil* by Frank Chadarov. As he points out, "Socialism without the 16th amendment is impossible, and with the 16th amendment socialism is inevitable."

This Constitutional Amendment gave legal authority to the Marxian doctrine "from each according to his ability; to each according to his need." A recent public opinion survey of high school students showed that 55 per cent of them today subscribed to this Marxian doctrine. America has gone a long way on the road to complete socialism.

This legal basis to gather wealth has given us the largest and most powerful government on earth. All of the branches of our government have become big. The Legislative effort is grandiose. The last Congress considered 16,470 bills, 407 of which had medical or public health implications. It is impossible for even the most conscientious congressmen to keep completely informed; in fact, it is likely impossible to keep accurately informed about the activities of one or more committees on which a congressman may be serving. The congress is log-jammed with bills to extend the services of government in hundreds of ways.

Life is seldom perfect for any of us; and there are the do-gooders, the socialists, and the politicians among us who see in this vast collection of wealth an opportunity to correct some of the inequities of life and to make the lot of mankind better.

As a result of this rush to get hold of a portion of this wealth, spending has gone up and up; and taxes are at an all-time high, averaging about 30 per cent of all income, at which level the law of diminishing returns sets in. Further, our public debt is higher than ever before—281 billions—with little thought or hope being given to repaying it. Our government is habitually given to deficit financing and has not lived within even the expanded budget since 1931. Yet, Sir Anthony Eden has announced that Great Britain will live within her budget this year. We should remember history that those nations who live in the financial red have often shortly spilled red blood in battle.

As a part of this expanding government, our congress in recent years has given to writing laws that are exceedingly complex. These bills go on and on for many pages trying to define the purposes and conditions under which the law will apply. Finally, to "clinch" the matter, the bill provides that "it shall be the responsibility of the administrator to establish such rules and regulations as to carry out the intent of this act." Whereupon, the various bureaucrats, given the responsibility, set up regulations which, when unchallenged in court for six months, become the law of our land. By this mechanism laws are established through direction and administration by unelected representatives.

In the Judicial branch of our government, the courts are filled with test cases, and lawyers are attempting to get decisions of law which are highly technical and involved—and appear to be becoming increasingly so.

The Executive Branch of our govern-

ment has grown like Topsy—and far exceeds its original dimensions. As thoughtful citizens, we must watch our Defense Department because of its immense expenditures and profound influence, the Department of Health, Education, and Welfare, and the State Department—this latter, along with other special agencies under the Executive Branch having vast effects in the international field and engaging in agreements and arrangements which often compromise our fundamental principles. Our one-world enthusiasts—who are in the drivers' seats— seem blind to some of the inherent dangers which appear obvious to other observers who question the wisdom of attempts of world government at this stage of world development.

Can our country better serve all mankind by remaining free and strong? This question is one of the fundamental issues of the day.

American medicine is involved in Big Government—which is attempting to alter the environment in which medicine is being practiced.

A large number of our citizens appear to feel that it would be in the public interest to have medical care a function of the state; to have physicians employed by the government as civil servants just as postal employees. Many of these people are sincere do-gooders and others are confirmed socialists. Naturally, the politician listens with a certain amount of eagerness since such medical care by the government would give him more influence over the lives of "the people" whose vote he is soliciting.

These people may not recall that experiences in many areas of the world have been to the contrary—that governmental medical care has not been better distributed, that it has been abused, that it has been costly to the government, that it has lost much of its human and personal touch, and that it has deteriorated in application and in research; has grown stale and sterile.

In our country, we see increasing pressure through government money for expansion of medical care. Where federal money goes, also goes—by supreme court ruling—federal control and direction. According to the *Report of the Medical Task Force of the Hoover Commission*, our Federal government has accepted all or part of our citizens. This number is largely in the veteran and military obligations. Pressure for further expansion is persisting in the form of more money for additional facilities and personnel. The doctor draft is requested again. At the same time the military is desirous of expanding care to the dependents of military personnel. In evaluating any such expansion of governmental medicine, we must consider the effects on the over-all care of the American people. It is not in the public interests to allow the military demands to expand so as to deplete the necessary medical manpower required for good civilian care.

Social Security in other nations has extended its function to include varying degrees of medical care; and the basic mechanism is already established here and is capable of expansion in our country to take over private practice.

American medicine is strong scientifically but is being challenged by government which is establishing large institutes of health, research facilities, grants, and training facilities. But the major challenges from government come in the socio-economic field.

Voluntary health insurance in the past fifteen years has grown to be a major mechanism for financing the cost of illness. Yet, we see government attempting to get into the act by way of the so-called re-insurance bill, which legislation is unnecessary and ill-drawn. If it is not subsidy, it will not reduce the cost of insurance and will not sell it to the unwilling buyer; if this proposed law is subsidy, we want none of it, since it would put government in a field that is already dealing effectively with its problems.

There have for years been proposals that the federal government help to finance the cost of medical education through grants to medical schools and scholarships to students; but American

medicine has not favored such procedures because of the real dangers of influence by regulation and stipulation of the conditions of granting federal funds. We must not jeopardize or compromise the freedom of medical education in our country.

No real emergency situations exist today to warrant the further expansion of federal medicine; and we must be on the alert to see that no unnecessary expansions take place. Instead, we must fight to cut taxes, even consider the possibility of limiting or abrogating the 16th amendment, so as to leave adequate financial resources at the local or state level.

Much of the so-called high cost of medical care is in the cost of hospital operation—which has gone up 700 per cent during the last fifteen years, mostly from increased labor costs. The amount paid out by the American consumer of medical services has been relatively constant and has continued about 4.5 per cent of the total income. A great deal of the increase in costs has been the result of inflationary effects which have been brought about by the very fiduciary policies of credit inflation by our national government.

The institution of private practice in our country has an enviable record and needs to be more widely appreciated by the average citizen. Its advantages and virtues must be pointed up by those persons who understand and know the facts. It behooves the medical profession to accept leadership in educating the public regarding the advantages of American medicine as applied in our society today.

Further, it is the obligation of every educated person to take the responsibilities of citizenship more seriously. The physician and his family must exercise leadership and attempt to live the role of the informed, complete citizen.

We cannot combat communism with big armies or propaganda alone. We must fight and gain strength out of the knowledge that our way of life is better and more valuable. America has developed an inferiority complex. Americanism is the most engaging and challenging philosophy that has been proclaimed on the face of the earth; and we must believe it so and cherish it and expound it.

As George Benson says, "Man's loftiest ambitions during six thousand years of recorded history have been (1) to understand and live acceptably before his God; (2) to enjoy personal freedom; and (3) to have the material necessities of life. In America we have developed a new way of life under which we have achieved all three of these goals to an extent that no one of them was enjoyed anywhere else for very long, and to a degree that they have never before been experienced, in combination, by any segment of the human race. We must make these facts known, proudly, to our children"—and to all mankind.

If America is to maintain a position of leadership in this modern world, we must lead not only in things material but also, and more importantly—in philosophy and things of the spirit. As educated and responsible citizens, men and women of American medicine will accept the challenge and measure up intelligently and courageously.

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ACUTE INTESTINAL OBSTRUCTION — A RE-EVALUATION OF THERAPY; REVIEW OF THIRTY-ONE YEARS AT A UNIVERSITY HOSPITAL (1923 - 1953)*

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The extensive literature on acute intestinal obstruction is an indication of its multiplicity of problems as well as its numerous causes and sequelae. The bibliographies summarized by McIver in 1933,[5] and Wangensteen in 1937,[12] reveal how much of great value in clinical observation and research had been contributed up to

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the time of their writings. If we consider the thousands of articles written up to the time of their two publications voluminous, the impetus provided by the newer concepts established since the early 1930's has inspired articles in all languages too numerous to attempt tabulation or count.

Acute bowel obstructions, protean in their pathological entities, with their abnormal physiology and chemical imbalances remain a challenge yet not completely engaged. Though great strides have been made in early diagnosis, correction of fluid electrolyte imbalance and blood volume deficiencies, intestinal decompression and operative management, the most valuable recent adjunct has been the free and intensive use of the antibiotics. Slowly rising over the horizon are a number of tetracycline derivatives which may soon replace the two so well tolerated: penicillin and streptomycin.

SCOPE OF THIS REPORT

This study, similar to numerous other statistical reports from other medical centers, comprises group evaluations in reference to changing concepts and the periods of years following their employment. In the thirty-one years reviewed there are 2508 cases: 581 (1923 to 1932); 1143 (1933 to 1946); 684 (1947 to 1953).

The first period, 1923 to 1932 inclusive, (Table 1), comprises ten years of frustration and confusion, where an occasional patient received subcutaneous or intravenous saline, a rare transfusion and, even less frequently an indwelling Levin tube inserted into the vast recesses of a greatly distended stomach. It must be noted here, however, that surgery of intestinal obstruction was always considered to be an emergency — that delay was dangerous. This latter factor became somewhat clouded when soon were introduced, in the second period of this report, the principles of decompression; studies often too prolonged, of chemical and fluid imbalance; and sometimes the operation too long delayed. The statistics for the ten year period were found to be 50.9 per cent.[10] Though it now seems prohibitive, the results compared quite favorably with the reports from other and similar institutions. The John Gaston Hospital is the charity hospital of Memphis and Shelby County and the teaching institution of the University of Tennessee. The indigent patients number approximately 80 per cent colored and 20 per cent white. The majority of patients with acute intestinal obstruction, then as now, are seen upon admission to be in critical condition, in states of extreme nutritional as well as electrolyte depletion. There were 581 cases studied in the first series with 296 deaths. In 1929, three years earlier, C. Jeff Miller[8] reported a series of 343 cases with a mortality of 61 per cent from New Orleans. Bennett[2] stated an average mortality rate of 70 per cent was the rule in most hospitals in earlier reports.

TABLE 1
SUMMARY OF 581 CASES OF ACUTE INTESTINAL OBSTRUCTION (ALL TYPES)
1923 TO 1932 INCLUSIVE

Year	Cases	Recoveries	Deaths	Mortality Rate
1923	56	22	34	60.70%
1924	33	15	18	54.54%
1925	47	23	24	51.08%
1926	38	15	23	60.50%
1927	53	27	26	49.05%
1928	63	31	32	50.79%
1929	67	36	31	46.26%
1930	57	31	26	45.60%
1931	77	42	35	45.32%
1932	90	43	47	52.22%
Totals	581	285	296	50.94%

The second period—the "period of enlightenment"—began soon after Wangensteen's first publications in 1931 and 1933.[13, 14] It includes the years 1933 to 1946, and a review of 1143 cases. The value of x-ray scout films, suction siphonage with electrolyte replacements, and indirect blood transfusions took popular hold. We were amazed at the number of patients in whom surgery was not done immediately, or even later. Especially were patients with acute gastric dilatation, paralytic ileus, and adhesive bands immediately, and most times, permanently relieved. Others were more amazingly improved within a few hours so that definitive surgery could

be accomplished without the former fearsome mortality rates. Later in this series the addition of the Miller-Abbott tube (1939), amino acid and vitamin therapy as well as the more frequent use of plasma (for a time) seemed to be valuable additions to our armamentarium. The infrequent use of the newer drugs, such as the sulfonamides, penicillin, and streptomycin appeared in the last couple of years in this series. (Table 2). The great improvement in this series was best noted early, when the mortality rate dropped from 39.0 per cent in 1933 to 12.7 per cent in 1938. "Something was lost" by 1939, when the mortality actually doubled (25.4 per cent). It has been suggested that because we began experimenting with the Miller-Abbott tube in 1939 procrastination in surgery was the thief. However, improvement in its use did not help restore the results obtained in 1936, 1937, and 1938. The depleted staff and resident surgeons during the war years was reflected in the statistics from 1941 to 1946. The surgical statistics in other diseases in 1944 revealed a parallel in intestinal obstruction too.[11] The summary, from 1933 to 1946, for the 1143 cases, showed a mortality rate of 26.07 per cent—almost 100 per cent improvement of the previous ten years' 50.9 per cent. There was still room for much improvement.

TABLE 2
MORTALITY RATE
SUMMARY OF 1143 CASES (1933 THROUGH 1946)

Year	Cases	Recoveries	Deaths	Mortality Rate
1933	51	31	20	39. %
1934	97	66	31	31.9 %
1935	47	27	20	42.5 %
1936	88	71	17	19.3 %
1937	98	81	17	17.3 %
1938	86	75	11	12.7 %
1939	114	85	29	25.4 %
1940	114	84	30	26.2 %
1941	88	69	19	21.6 %
1942	66	48	18	27.3 %
1943	88	70	18	20.4 %
1944	72	42	30	41.6 %
1945	64	46	18	28.1 %
1946	70	50	20	28.5 %
Totals	1143	845	298	26.07 %

The third period, 1947 to 1953, inclusive, is a review of 684 cases compiled in the seven years. The younger staff members had returned from the services, and the full four year surgical residencies were re-established by this time (1946). The other "new" factors rediscovered during this period were: (1) better anesthesia, due to the establishment of a full time anesthesiologist; (2) the establishment of a blood bank with the availability of plenty of life-saving blood; (3) the intensive use of the antibiotics—first made freely available by the City Fathers. The hospital is completely maintained by the City of Memphis. The strained budget, before 1947, prohibited routine antibiotic prescription; (4) the universal employment of scout films in diagnosis; (5) the avoidance, whenever possible, of delay by prolonged suction siphonage, preparing patients as rapidly as possible for surgery; (6) the importance of the addition of potassium and sodium determinations to other biochemical tests; (7) the addition of the more appropriate solutions for intravenous use (molar-lactate; Ringers-lactate; invert sugar; potassium chloride; Darrow's solution; etc.) Recent current experiments, here and elsewhere, with intravenous fat solutions may add to the long list of valuable intravenous adjuncts. (Table 3)

TABLE 3
MORTALITY RATE
684 CASES (1947 THROUGH 1953)

	Cases	Deaths	Mortality Percentage
1947	105	8	7.62
1948	113	12	10.62
1949	98	5	5.10
1950	74	9	12.16
1951	67	5	7.46
1952	110	9	8.18
1953	117	10	8.55
Totals	684	58	8.48

In 684 cases reported there were 58 deaths with an overall mortality rate of 8.48 per cent. The highest rate appeared in 1950, 12.16 per cent and the lowest in 1951, 7.46 per cent.

THE ELAPSED TIME FACTOR

(The relationship of mortality to the

time of onset of disease and admission to the hospital)

The early diagnosis and early treatment of acute intestinal obstruction go hand in hand in reducing the mortality rate, no matter what its cause. A patient with adhesive obstruction or strangulated hernia, operated upon within hours after onset can be assured of a minimum risk. The addition of days of delay in admission presents formidable obstacles to good results. Table 4 reveals the elapsed time, in

TABLE 4
ELAPSED TIME FACTOR
1824 CASES (1933 TO 1953 INCLUSIVE)

Elapsed Time (Onset to admission)	Cases	Recovered	Died	Mortality Percentage
72 hours or more	544	356	188	34.56
48 hours to 72 hours	186	141	45	24.19
24 to 48 hours	241	199	42	17.04
Up to 24 hours	794	728	66	8.32
Not recorded	62	45	17	

days, from onset to admission, with its revealing consequences of delay. Patients admitted within twenty-four hours after onset exhibited a mortality of 8.32 per cent. There was more than a 100 per cent increase in mortality in the second twenty-four hour period, to 17.04 per cent. It rose to 300 per cent in forty-eight hours and to more than 400 per cent in seventy-two hours or more. These figures have been tabulated since 1933, a summary of 1824 cases. They represent a vigorous indictment against delay. All of today's modern therapy and surgery are of little avail to more than a third of the patients admitted four days after the onset of obstruction, 34.56 per cent. The chances are better than 10 to 1 in his favor if he is admitted within the first twenty-four hours, 8.32 per cent. These are potent figures to convince physician and medical student as well as the layman. Bramlett, Hardy and Wilson [3] emphasize the seriousness of delay and its influence on mortality especially after admission, urging more rapid preparation for surgery.

RACE MORTALITY RATES (1947-1953)

Since the hospital averages about 4 to 1 negro over white admissions, it was thought that there might be some unrevealed factor in the comparative mortality rate. There was none. There were 595 colored and 89 white patients in the series. (Table 5) Only 1.26 per cent separated the male colored group (which was the greater) from the male white group. The female groups were practically identical. However 48.11 per cent of all deaths (329) were colored male.

TABLE 5
MORTALITY RATE
NEGRO AND WHITE (1947 THROUGH 1953)

	Cases	Deaths	Mortality Percentage	Percentage of Total Deaths
		Negro		
Male	329	29	8.81	48.11
Female	266	22	8.27	39.93
		White		
Male	53	4	7.55	6.89
Female	36	3	8.33	5.17
Totals	684	58	8.48	100.00

OPERATIVE RECORD

Patients with strangulated hernia presented the best operative record in that the great majority were admitted within the first twenty-four hour period of their disease. (Table 6) Most of the simple reductions were strangulated hernia. Volvulus, 32 cases, with 2 deaths, was also in this group; as was intussusception, 27 cases with one death. Many patients, critically ill, with gangrenous bowel, required resection; 56 cases with 16 deaths were recorded, a mortality of 28.57 per cent. The most seriously ill, and sometimes nearly moribund, comprised the group in whom enterostomy or colostomy

TABLE 6
OPERATIVE RECORD—684 CASES
(1947-1953 INCLUSIVE)

	Number Operations	Recovery	Deaths	Mortality Rate
Simple Reduction	235	228	7	2.94%
Lysis of Adhesions	197	187	10	5.08%
No Surgery	158	145	13	8.23%
Intestinal Resection	56	40	16	28.57%
Enterostomy or Colostomy	25	15	10	40.00%
Entero-enterostomy	11	9	2	18.18%
Ileocolostomy	2	2	0	00.00%
	684	626	58	8.48%

under local anesthesia was performed. In this group 25 patients were operated upon with 10 deaths, a mortality of 40.0 per cent. Thirteen patients were considered near death upon admission. None were operated upon and all died.

ANESTHESIA RECORD

There were a larger number of general inhalation anesthesias than spinals. (Table 7) The School of Anesthesia, with the

TABLE 7
ANESTHESIA RECORD (1947-1953 INCLUSIVE)

	Operations	Died	Mortality Rate
General	259	23	8.84%
Spinal	245	20	8.12%
Local	22	2	9.09%
	526	45	

In 1941 - 1946 Series:
280 General Anesthesias with 80 deaths: 28.9%
74 Spinal Anesthesias with 16 deaths: 21.6%

cooperation of the surgical residents, consider certain cases, especially the cyanotic patients, as better risks when an intratracheal tube, with a liberal supply of oxygen, is used. There was very little difference in the overall mortality between spinal and general anesthesia. However, the better anesthesia in the 1947-1953 series stands out in marked contrast to the 1941-1946 series. Choice of anesthesia as well as proficiency in administration play an important role in the operative management of intestinal obstruction.

PREVIOUS ABDOMINAL SURGERY

Recently numerous observations in the literature point to the rising number of cases of acute intestinal obstruction due to postoperative adhesions, Becker [1] Mersheimer and Winfield [6] Parker,[9] etc. (Table 8). Of the patients in this series, 45.2 per cent, 314 patients, revealed a history of one or more previous abdominal operations. Pelvic surgery and appendectomies are far in the lead in the procedures previously done.

THE CAUSE OF OBSTRUCTION

In comparable series, here and elsewhere, the number of cases of postoperative adhesions is definitely on the rise. Though one cannot assuredly put the finger of blame on a previous operative procedure as the definite cause of the ad-

TABLE 8
PREVIOUS ABDOMINAL SURGERY
(1947 TO 1953 INCLUSIVE)

	Cases	One or more Operations
1947	105	45
1948	113	51
1949	98	57
1950	74	38
1951	67	47
1952	110	29
1953	117	47
	684	314

45.2% of 684 patienes revealed a history of one or more previous abdominal operations.

hesive obstruction in every case, there were 252 cases of postoperative adhesions in this series. In all there were 335 cases or 48.96 per cent. As the number of cases due to adhesions rises, there is a percentage decrease in the number of strangulated hernias (C. F. Dennis [4]); 34.51 per cent of the cases were in this category, 165 inguinal, 26 femoral and 21 umbilical. (Table 9)

TABLE 9
CAUSE OF OBSTRUCTION (684 CASES)
(1947-1953 INCLUSIVE)

Adhesions (48.96%)		**Volvulus** (4.97%)	
Post-operative	252	Sigmoid	27
Post-inflammatory	83	Small Bowel	5
	335		32
Hernia (34.51%)		**Intussusception** (3.95%)	
Inguinal	165	All types	27
Femoral	26	**Malignancies** (3.81%)	
Umbilical	21	Sigmoid	7
Incisional	15	Cecum	6
Internal	4	Carcinomatosis	4
Diaphragmatic	3	Descending Colon	3
Epigastric	2	Transverse Colon	2
	236	Rectum	1
		Pancreas (ileum)	1
		Ovary (sigmoid)	1
			25
Congenital Bands	7	Adynamic Ileus	7
Undetermined	6	Fecal Impaction	4
Mesenteric Thrombosis	4	Gall Stone in Ileum	1
		Diverticulitis of Sigmoid	1

The most interesting feature in the series is the large number of cases of volvulus of the sigmoid. There were 27 cases with but two deaths. Michel and McCaf-

ferty's review of volvulus reveals a definite increase in the number of cases seen, not only of the sigmoid, but of the cecum and transverse colon.[7]

There were 27 cases of intussusception with one death. Resection was necessary in the infant who died soon after surgery.

Since many malignancies are admitted to a general hospital with long standing chronic obstruction it was with great care that this group was delineated for acute occlusions only. There were, however, 25 cases, mainly of the large bowel, with 7 deaths. (Table 10)

TABLE 10
TERMINAL CAUSES OF DEATH (58)
(1947-1953 INCLUSIVE)

3* Peritonitis	11	Postoperative Adhesions	4
3* Strangulated Inguinal Hernia	5	Post-Inflammatory Adhesions	2
* Strangulated Femoral Hernia	2	2* Uremia	6
Strangulated Umbilical Hernia	1	* Diabetic Coma	1
* Strangulated Epigastric Hernia	1	Coronary Thrombosis	2
Carcinoma of Rectum	3	Pulmonary Embolism	2
Carcinoma of Sigmoid	2	Tubo-Ovarian Abscess	1
Carcinoma of Ovary	1	* Gangrene of Ileum	1
Carcinoma of Pancreas	1	Operative Shock	6
* Carcinomatosis	1	Apoplexy	1
Hodgkins Disease	1	Volvulus of Sigmoid	2
		Intussusception	1

* Died shortly after admission; no surgery (13 cases).

CLINICAL CLASSIFICATION

The Wangensteen classification of intestinal obstruction was elaborated and modified by us in 1940 [10] to suit our needs. In this classification the Adhesive Group was separated from Wangensteen's Mechanical Group. We believe that in so doing we could also classify our treatment in the Adhesive Group more readily. The classification was further elaborated so as to outline treatment as well. (Table 11)

In Table 11 is outlined a clinical and pathological classification, modified after Wangensteen's original. At a glance it classifies the lesion; presents its classification as simple, strangulation or strangulation-like; and on the same level suggests the treatment to be instituted.

SUMMARY

A review of three distinct periods in the treatment of acute intestinal obstruction is presented totaling 2408 cases. The first period, 1923 to 1932, a statistical study of 581 cases with a mortality of 50.9 per cent. The second period—"the period of enlightenment"—an intensive study of 1143 cases from 1933 to 1946, improved the mortality to 26.07 per cent, almost 100 per cent reduction, but still not satisfactory according to improved methods of diagnosis, treatment and improvements in operative technique. The third period, ushered in by the immediate post-war period, with improvements in anesthesia, the establishment of the blood bank, the intensive use of the antibiotics, the emphasis on earlier surgery, the improvement and elaboration of new intravenous electrolyte therapy plus better understanding of sodium and potassium interchange, plus alert staff and resident cooperation and enthusiasm, has led to marked reduction in the mortality rate. This latter group comprises 684 cases, with a mortality rate of 8.48 per cent.

CONCLUSIONS

1. To attain and maintain a low mortality figure in acute intestinal obstruction, it requires constant, vigorous application of all the newer concepts in diagnosis, disturbed body chemistry, blood and fluid imbalance, intestinal decompression, preoperative and postoperative antibiotic therapy, and specific, definitive surgery to be carried out just as soon as the patient can be prepared for it.

2. Delay in admission to the hospital, compounded by delay in the proper timing of surgery are still the two main factors which increase the overall mortality.

3. Postoperative adhesions now overshadow all causes of obstruction, surpassing strangulated hernias.

4. There is a definite trend toward an increase in the number of malignant obstructions of the colon and of volvulus of

TABLE 11
WAGENSTEEN (MODIFIED) CLINICAL AND PATHOLOGICAL CLASSIFICATION OF ACUTE OBSTRUCTION WITH AN OUTLINE OF TREATMENT INDICATED IN TYPE CASES

Clinical Classification	Pathologic Classification	Treatment
I. MECHANICAL Narrowing of lumen due to: 1. Strictures of the bowel wall (a) Congenital (Atresia (Imperforate anus. (b) Acquired (Neoplastic (Inflammatory (Traumatic 2. Obturation (a) Gallstones (b) Fecal Impactions 3. Compression from without (tumors of pelvis, retro-peritoneum, etc.)	Simple (Excepting complete occlusions of the colon)	Operation preceded by suction siphonage, fluid, electrolyte, plasma, blood and protein replacement therapy. In occlusions, with great distention, immediate operation.
II.. ADHESIVE 1. Postoperative 2. Post-inflammatory	Simple or Strangulation	Suction and replacement therapy, then operation. Early operation in strangulation after rapid preparation. (Small bowel closed loop)
III. VASCULAR 1. Hernia (a) External (b) Internal 2. Intussusception 3. Volvulus 4. Mesenteric Thrombosis and Embolism	Strangulation or strangulation-like	Early operation after rapid preparation (blood and plasma during operation)
IV. NEUROGENIC 1. Adynamic (paralytic) ileus 2. Dynamic (spastic) ileus	Simple	Suction, with replacement therapy.

the sigmoid. The former is due to the evident increase in the average length of life. The latter, though actual, presents mysterious and anomalous phenomena.

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ACUTE MYOCARDIAL INFARCTION, ACUTE MYOCARDIAL ISCHEMIA AND UNEXPECTED SUDDEN DEATH *

A STUDY OF CASES ENCOUNTERED IN PRIVATE PRACTICE DURING THE PAST NINE AND ONE-HALF YEARS

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This study has been undertaken with a twofold purpose: first, to summarize and appraise our own experiences with acute

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myocardial infarction and acute myocardial ischemia; and second, to ascertain the incidence and the circumstances of unexpected sudden death in our patients presumably due to coronary artery disease. There have been many studies published concerning acute myocardial infarction and ischemia, episodes of which are usually treated in hospitals and thus readily subject to statistical analysis. There is little in print, however, concerning the relative incidence of sudden death. This all too frequent catastrophe generally occurs outside the hospital, is rarely accurately diagnosed by electrocardiogram or autopsy, and thus, is usually ignored in statistical studies of the complications of coronary artery disease.

The period covered by this study is from April 1, 1946, to October 1, 1955. All patients herein described were private patients under the management of either or both of us.

I. ACUTE MYOCARDIAL INFARCTION

The diagnosis of acute myocardial infarction was based on the typical EKG pattern of a signficant Q wave with elevation of the RS-T segment, or on the findings at autopsy. In a few cases in which the EKG pattern was not quite conclusive, infarction was judged to be present if there was a compatible clinical picture, including fever, leucocytosis and an elevated sedimentation rate.

There were 128 attacks of acute myocardial infarction in 118 patients under our direct care. An additional 11 patients seen once or twice in consultation are not included. Of the 118 patients all but 3 have been followed to the present or to death. Of these 3, 2 were followed for only one month and 1 for only one year. Of the 128 attacks, 17 were treated outside the hospital and 111 in the hospital—102 in Hotel Dieu Sisters Hospital, 6 in Touro Infirmary, 2 in Mercy Hospital and 1 in Southern Baptist Hospital.

SEX AND AGE

The sex and age distributions (Table 1) were quite similar to those noted in other studies.[1] The male to female ratio was exactly 3:1 by number of attacks (96:32), and about 3:1 by number of patients (88:30). The age range for males was 31-83 and for females 38-83 years. The peak incidence for males was from 51-60 years (44 per cent), and for females 61-70 (46 per cent). Seventy-five per cent of attacks in males occurred in the age period 46-65 and 69 per cent of attacks in females in the age period 56-75. In males age 40 or younger, there were 8 attacks in 6 patients. Of these 6 young men, none was hypertensive but 4 were overweight; 1 has since developed diabetes, 1 has a parent with diabetes and angina, and another who now has gout has diabetes in both parents, coronary heart disease in one parent and gout in a brother. This is quite similar to the pattern of heredity found by others in a study of young men with coronary heart disease.[2] Whereas there were 30 attacks in males age 50 or younger, there were only 4 attacks in females in this age group. One woman had 2 attacks 5 months apart at age 38. Both ovaries had been removed two years before. A second woman, who had her attack at age 40, had been hypertensive for ten years. The woman who had her attack at age 42 had had both ovaries removed the year before. These findings are in accordance with the

TABLE 1
ACUTE MYOCARDIAL INFARCTION—DISTRIBUTION BY SEX AND AGE

Total Attacks—128				
96			32	
Male		Age	Female	
2		31-35	0	
6		36-40	3	
4		41-45	1	
18		46-50	0	
21	44%	51-55	3	
21		56-60	5	
12		61-65	10	46%
7		66-70	5	
2		71-75	2	
2		76-80	1	
1		81-85	2	

75% … 69%

old observation that the woman with functioning ovaries is almost entirely free from coronary artery disease, provided she does not have hypertension or diabetes.

CARDIAC STATUS PRIOR TO INFARCTION

The cardiac status prior to infarction is shown in Table 2. One half of the attacks occurred in patients known to have coronary artery disease. On the other hand almost one fourth of the attacks occurred in patients without known heart disease of any type and without hypertension. Only 5 per cent of the attacks occurred in patients with previous congestive heart failure. Fifteen attacks (11.7 per cent) occurred in patients who had already had one or more attacks of myocardial infarction; of these 15, 4 were in patients age 40 or younger.

TABLE 2
ACUTE MYOCARDIAL INFARCTION — 128 ATTACKS
CARDIAC STATUS PRIOR TO INFARCTION

	Instances	Approximate %
Hypertension	69	54
Known Coronary Disease:		
(Angina plus infarction)	64	50
Angina	49	38
Enlarged Heart	34	27
No Cardiac Disease	28	22
Previous Infarction	15	12
Unrecognized Angina	9	7
Previous Congestive Failure	6	5
Valvular Disease	2	2

CLINICAL PICTURE

The onset of an attack of acute myocardial infarction is usually accompanied by symptoms sufficient to immobilize the patient until the doctor arrives or to lead to the patient being taken directly to a hospital. On the other hand the symptoms may be so mild that the patient is still on an ambulatory status when the diagnosis is revealed by an electrocardiogram taken in the doctor's office or in the hospital Heart Station. This was true in 16 of the 128 attacks in this series. In 9 of these 16 attacks the patient was still in pain, present for one to four days. In 2 attacks the pain had ceased two to seven days before examination. In 5 attacks, the diagnosis was made from eight to twenty-eight days after the probable onset of infarction, the patient in each case having been ambulatory for all but a few days of this time. Indeed, one stubborn patient, a businessman of 60, refused to go to bed even after he was told of his diagnosis. He continued to work daily and to go out socially—yet made an uneventful recovery and is alive today, seven years later.

There was no pain at onset in 3 cases. One of them was in the immediate postoperative period and died after a few hours of acute left ventricular failure. The true diagnosis was established only at autopsy. In the other 2 cases the attack was ushered in with syncope; one of these patients had pain two days later at the same time that a pericardial friction rub was heard. The other patient never had pain at any time and is the only truly painless infarction in this series.

The pain was typical or fairly typical in 114 instances. It was distinctly atypical in 11 instances, being predominant in one or both arms in 4, the abdomen in 3, the back in 2, and the neck and upper jaw in one each.

COMPLICATIONS

The clinical course was judged to be uncomplicated in 68 attacks or 53 per cent.

TABLE 3
ACUTE MYOCARDIAL INFARCTION — CLINICAL COURSE

	No.	Approximate %
Uncomplicated Attacks	68	53
Complicated Attacks	60	47
Death within 3 months	23	18
Shock	8	6
Arrhythmia	6	5
Auricular Fibrillation or Flutter	4	
Ventricular Tachycardia	2	
A-V Block	10	8
Partial	7	
Complete	3	
Bundle Branch Block	4	3
Congestive Heart Failure	29	23
Mild	17	
Severe	12	
Thrombo-embolism	9	7
Pulmonary	8	
Femoral & Pulmonary	1	
Possible Pericardial Hemorrhage	3	3
Pancreatitis	2	2
Diabetic Acidosis	2	2

The various complications encountered in the 60 other attacks are shown in table 3. Thromboembolism deserves special comment. Although this complication occurred in only 7 per cent of the attacks and although no deaths could be attributed to it, nevertheless it represented a significant cause of morbidity, being responsible for almost all the hospitalizations of longer than four weeks and for all 3 of those of eight weeks or longer. Furthermore, amputation of a leg was necessary in the patient who suffered the embolus to the femoral artery.

TREATMENT

Important items of treatment are shown in table 4. We feel that oxygen is not indicated for pain alone and that it need be given only when there is dyspnea, cyanosis, shock, significant tachycardia, pulmonary congestion, or when necessary sedation impairs respiratory function. Hence it was administered in only 38 per cent of attacks.

TABLE 4
ACUTE MYOCARDIAL INFARCTION—TREATMENT EMPLOYED

	No.	%
Adequate Anticoagulant Therapy	74	58
Inadequate Anticoagulant Therapy	10	8
Late Administration	7	
Died within 24 hours	3	
No Anticoagulant Therapy	44	34
Hospital	27	
Home	17	
No Oxygen	79	62
Oxygen: Less than 5 days	26	
More than 5 days	23	49 38
Mercurial Diuretics	26	20
Digitalis	28	22
Quinidine	38	30
Levophed, etc.	6	5

We began to employ anticoagulant therapy routinely in all hospitalized patients in 1949, omitting it only in patients with a complicating disease with a tendency to hemorrhage such as peptic ulcer, pancreatitis, or leukemia, and in a few mild attacks diagnosed late.

Adequate anticoagulant therapy using dicumarol was accomplished in 74 instances. Therapy was considered inadequate if it was started later than forty-eight hours after the infarct (7 instances), or if the patient died within the first twenty-four hours of therapy (3 instances).

Since our series is not made up of alternate control cases and since no deaths in either group were due to thromboembolism, we do not feel justified in drawing any conclusions from our experience as to the value of anticoagulant therapy. The results are shown in table 5, along with those of the American Heart Association joint study of 1031 cases.[3] In this analysis all deaths occurring in the first twenty-four hours after hospitalization have been excluded in both series.

TABLE 5
ACUTE MYOCARDIAL INFARCTION—ANTICOAGULANT THERAPY

	Adequate	None or Inadequate
This Series		
Total Number	74	44
Number Thrombo-embolic Complications	5	4
Percent Thrombo-embolic Complications	7%	9%
Number Deaths	3	7
Percent Deaths	4%	16%
AHA Study [3]		
Percent Thrombo-embolic Complications	11%	26%
Percent Deaths	16%	23%

Hemorrhage, presumably due to dicumarol, was definite in only 1 case, and was subconjunctival. In 3 other cases pericardial hemorrhage was suspected but not proven. No deaths could be attributed to dicumarol.

MORTALITY

At the time of this report, 72 patients (62.6 per cent) are known to be alive and 43 (37.4 per cent) are known to have died. As already mentioned, 3 patients have been lost to follow-up. Of the 43 deceased patients, 20 died during the acute attack and 23 subsequently.

For the purpose of this study any death occurring within the first thirty days was considered to be a death resulting from the acute attack of infarction. An analysis of this thirty day mortality for age and sex is shown in table 6. It may be

TABLE 6
ACUTE MYOCARDIAL INFARCTION—THIRTY DAY MORTALITY BY AGE AND SEX

Age	Male			Female			Total		
	Attacks	Deaths	%	Attacks	Deaths	%	Attacks	Deaths	%
31-40	8	0	0.0	3	0	0.0	11	0	0.0
41-50	22	1	4.5	1	0	0.0	23	1	4.3
51-60	42	6	14.3	8	1	12.5	50	7	14.0
61-70	19	4	21.0	15	5	33.3	34	9	26.4
71-80	4	1	25.0	3	1	33.3	7	2	28.6
81-90	1	1	100.0	2	0	0.0	3	1	33.3
	96	13	13.5	32	7	21.9	128	20	15.6

seen that: (1) mortality was higher in females (21.9 per cent) than in males, (13.5 per cent), and that (2) mortality increased progressively with age, from 0 for age 31-40 to 33.3 per cent for age 81-90. Four patients age 40 or younger have survived 2 attacks each.

Thirty day mortality by other groupings is shown in Table 7. It was 15.6 per

TABLE 7
ACUTE MYOCARDIAL INFARCTION—THIRTY DAY MORTALITY

	Number Deaths /Total Number	% Mortality
All Attacks	20/128	15.6
1946 - 1949	10/31	32.3
1950 - 1955	10/97	10.3
All Hospital Attacks	18/111	16.2
All Home Attacks	2/17	11.8
First Attacks	18/113	15.9
Second or Later Attacks	2/15	13.3
Anterior Infarction	12/59	20.3
Posterior Infarction	7/60	11.6
Anterior and Posterior Infarction	1/5	20.0
Lateral Infarction	0/4	0.0

cent for the total series and about the same (15.9) per cent for first attacks only. These figures are considerably higher than the 5 per cent mortality in first attacks in private patients claimed by Master et al.[4] On the other hand, this 15.6 per cent in our series is slightly lower than the 19 per cent mortality reported in 2 other studies.[1, 5]

It is to be noted that the mortality for 31 cases treated 1946-1949 was 32.3 per cent, whereas for 97 cases treated 1950-1955, it was only 10.3 per cent. The high mortality 1946-49 is partly explained by the retrospective nature of this study. The records of all fatal cases have definitely been located in the special "deceased" file whereas the records of some survivors seen in the earlier years of the study have probably been overlooked. In this series anterior infarction was fatal almost twice as often as posterior, 20.3 to 11.6 per cent.

Percent survival following acute myocardial infarction from the first day of medical care is shown for the whole series 1946-1955 and for the more recent years 1950-1955 (Table 8). It will be noted that

TABLE 8
ACUTE MYOCARDIAL INFARCTION—PERCENT SURVIVAL FROM THE FIRST DAY OF MEDICAL CARE THROUGH THE EIGHTH YEAR

Time	128 Attacks 1946-55	97 Attacks 1950-55
1 Day	92%	94%
1 Week	87	91
1 Month	84	90
3 Months	81	86
1 Year	69	73
2 Years	58	63
3 years	48	51
4 Years	39	40
5 Years	28	20
6 Years	17	
7 Years	4	
8 Years	2	

the first day carries a high mortality—10 of the 20 cases dying in the first thirty days died on the first day. Improvement in survival in the more recent series is chiefly through the first three months: 90 vs. 84 per cent at one month and 86 vs. 81 per cent at three months. After three months the percentages are quite similar for the two groups. Figure 1 shows the above data in graphic form.

CAUSE OF DEATH

Table 9 shows the cause of death for those 20 patients who died during the acute attack. Autopsies were obtained in

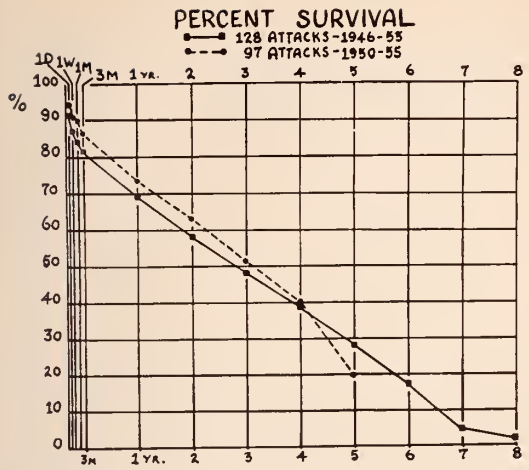


Figure 1. Per cent survival after acute myocardial infarction—first day through eighth year.

11, or 55 per cent. Congestive failure was judged to be the cause of death in 40 per cent. Unexplained sudden death was the next most common cause, 30 per cent (20 per cent with pain and 10 per cent without pain). There were no autopsies in this subgroup. Rupture of the heart accounted for 15 per cent (10 per cent involving left ventricular lateral wall and 5 per cent interventricular septum). Two patients are shown as dying of cardiac rupture on the first day of treatment. In each instance, clinical symptoms had been present for about four days before medical attention was sought. Shock was considered the chief cause of death in 10 per cent, and complete A-V heart block in 5 per cent. No deaths were proven to be due to thrombo-embolism or to ventricular tachycardia.

Table 10 shows the cause of death for those 24 patients who survived the acute attack but died later. Only one (4 per cent) died of another proven attack of myocardial infarction (his death is tabulated above also, with those dying in an acute attack); yet 17 or 71 per cent undoubtedly died of acute inadequacy of the coronary circulation, with no electrocardiographic or autopsy proof of exact cause. Of these, 4 or 17 per cent were found dead—2 in bed, 2 on the street; 13 or 54 per cent died unexpectedly—1 without pain and 12 with typical cardiac pain. Of this 13, 12 died before they could be moved to the hospital; 1 died suddenly after being in the hospital for several days with recurrent cardiac pain. An electrocardiogram taken the day before death showed no new infarction. Autopsy was not obtained. Four patients or 17 per cent died of congestive heart failure.

DURATION OF ILLNESS AND DISABILITY

Table 11 shows the duration of illness in survivors and the duration of disability in those able to return to work or to their former activity. Hospitalization did not exceed three weeks in 64 per cent and was less than four weeks in 83 per cent. The patients were usually sitting in a chair for an hour or so three times daily a few days before discharge from the hospital. After progressive increase in activity at home, the first venture which the patients made out of their homes was to visit our office. The length of time from onset of illness to this visit was less than seven

TABLE 9
ACUTE MYOCARDIAL INFARCTION—CAUSE OF DEATH IN TWENTY PATIENTS DYING DURING THE ACUTE ATTACK

Cause	First Treatment Day	Day 2-30	Total	Autopsies in ( )		%
Congestive Heart Failure	5	3	8	(5)		40
Sudden Unexpected Death — With Pain	1	3	4	(0)	20	
Sudden Unexpected Death — Without Pain	0	2	2	(0)	10	30
Ruptured Heart Muscle	2	1	3	(3)		15
Shock	1	1	2	(2)		10
Complete A-V Block	1	0	1	(1)		5
Thrombo-embolism	0	0	0			0
Ventricular Tachycardia	0	0	0			0
Total	10	10	20	(11)		100%

TABLE 10
ACUTE MYOCARDIAL INFARCTION—CAUSE OF DEATH IN 24 PATIENTS WHO SURVIVED THE ACUTE ATTACK BUT DIED LATER

Cause		Death in First Year	Death After First Year	Total Deaths		%	
Sudden Unexpected Death	With Pain (Prob. Infarct)	6	6	12	13	54	71%
	Without Pain	0	1	1			
Found Dead		2 (Bed)	2 (Street)	4		17	
Congestive Heart Failure		1	3	4		17	
Proven 2nd Myocardial Infarction		0	1	1		4	
Cerebral Vascular Accident		1	0	1		4	
Brain Tumor		0	1	1		4	
Total		10	14	24		100%	

TABLE 11
ACUTE MYOCARDIAL INFARCTION—DURATION OF ILLNESS IN SURVIVORS AND OF DISABILITY IN THOSE ABLE TO RETURN TO WORK OR USUAL ACTIVITY

Weeks or Less		2	3	4	5	6	7	8	9	10	11	12	13	14	15	More
In Hospital	90 Cases	1	57	17	7	2	1	3			1	1				
	Approx. %	1	63	19	8	2	1	3			1	1				
From onset until able to visit doctor's office	69 cases				9	24	12	5	10	1	3	3	1		1	
	%				13	35	17	7	13	1	4	4	1		1	
From onset until return to work or usual activity	65 cases					3	3	6	14	8	7	6	8	6	2	2
	%					5	5	9	22	12	11	10	12	10	3	3

weeks in 65 per cent and less than nine weeks in 85 per cent. Return to work or to previous level of activity was accomplished within 7 weeks in 10 per cent; within ten weeks in 53 per cent and within thirteen weeks or three months in 86 per cent. The self-employed patients returned to work much sooner than those whose salary continued on regardless of disability.

After recovery from acute myocardial infarction, most patients are able to return to a useful life and usually to the same job, provided it does not entail heavy physical labor. Table 12 shows the physical activity prior to the attack. Only 1 of our 118 patients, a bricklayer, performed heavy labor. Six per cent performed light physical labor such as that required of an electrician, 29 per cent did the equivalent of housework or outside selling; and 64 per cent were sedentary, including 30 per cent classified as executives, 26 per cent as clerks, and 8 per cent as inactive or retired.

TABLE 12
ACUTE MYOCARDIAL INFARCTION—JOB OR ACTIVITY EQUIVALENTS PRIOR TO ATTACK

	No. Patients	%	
Inactive or retired	10	8	
Executive	35	30	64%
Clerical	30	26	
Housework	16	13	
Outside selling	19	16	29%
Light physical labor i.e., electrician	7	6	
Heavy physical labor i.e., bricklayer	1	1	
	118	100%	

The status of our patients who survived acute myocardial infarction is shown in Table 13. Six per cent remained invalids till they died between one and six months after the attack. Two per cent are living and are still invalids after apparent maximum recovery. Seven per cent remained partial invalids. Eighty-five per cent have returned to economic usefulness, 75 per cent to their former jobs or activities, and 10 per cent to less strenuous work.

II. ACUTE MYOCARDIAL ISCHEMIA

Twenty-seven attacks of acute myocar-

TABLE 13
ACUTE MYOCARDIAL INFARCTION—ACTIVITY STATUS OF THOSE WHO SURVIVED THE ACUTE ATTACK

	No. Patients	%
Same Job	73	75
Lighter Job	9	10
Partial Invalid	7	7
Invalid Till Death in 6 Months	6	6
Still Invalid	2	2
	97	100%

dial ischemia were encountered during the same nine and one half year period in which we saw 128 instances of acute myocardial infarction. It has often been difficult both at the time of illness and in retrospect to decide whether a particular patient was suffering from an infarction of from ischemia.

Serial electrocardiograms from 1 of our cases show the changes which we consider typical of acute myocardial ischemia. (Figure 2). Thirteen of the 27 cases

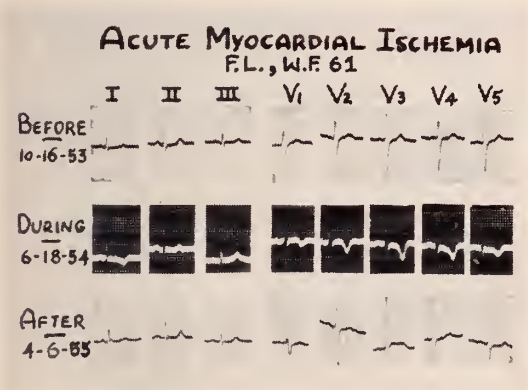


Figure 2. Electrocardiographic pattern before, during, and after acute myocardial ischemia.

showed this extreme inversion of the T wave and 8 showed changes of lesser degree. In 6 cases, the T wave changes were considered to be partially obscured—by previous infarction in 3, by left ventricular strain in 2 and by digitalis in 1.

There were 16 males and 11 females with acute myocardial ischemia. Thus, the percentage of females was higher in the ischemia group (41 per cent) than in the infarct group (33 per cent). The age spread was essentially similar, from 34 to 81 in males and from 37 to 77 in females. For males, the peak incidence was at 61-70, a decade older than in the infarct group, and for females 56-65 or slightly younger than in the infarct group.

The cardiac status prior to the attack of ischemia was as follows: No heart disease 37 per cent; angina 18 per cent; previous myocardial infarction 11 per cent; hypertension 44 per cent; enlarged heart 30 per cent; congestive heart failure 11 per cent; and valvular heart disease 7 per cent.

The clinical picture was essentially identical with that of the milder attacks of acute myocardial infarction. Indeed, the pain in many of the ischemia patients was greater in both severity and duration than in many of the infarct patients. Only one patient had a painless attack and the pain in her case may have been obscured by postoperative sedation. Unexplained tachycardia led to the diagnosis in her case. In 2 patients syncope occurred and in 3 others there was a significant fall in blood pressure.

Twenty-two of the 27 were treated in the hospital and 5 at home. It is interesting to note that the indirect signs of infarction were frequently present. Temperature over 100° F. orally, occurred in 5 of 24 patients, or 20 per cent. A leucocytosis of over 12,000 was noted in 7 of 22 patients or 32 per cent. A sedimentation rate of over 15 for males or over 20 for females (Cutler method) was noted in 14 of 21 patients, or 67 per cent. Seven of 21 patients, or 33 per cent, had 2 of the three features listed above and 2 patients or 10 per cent had all 3 features, yet the electrocardiogram was such that we chose to classify these patients as ischemia rather than infarction.

None of the patients was hospitalized for more than four weeks. One quarter left before fourteen days and three quarters before twenty-one days. Dicumarol was employed just as for myocardial infarction in 14 of the hospital cases or 64 per cent.

There were no fatalities from the acute attack or in the first thirty days. Six of

the patients have subsequently died—2 of unexpected sudden death, 1 of a probable myocardial infarct, one of congestive heart failure, 1 of a carcinoma of the kidney and 1 of a ruptured aneurysm of the abdominal aorta. Of these 6 who died, 4 died within a year of the ischemic episode (2 of these had had previous infarcts) and 2 died in the third year after the attack.

Of the 21 still alive, 13 have survived more than two years since the attack, and 8 have been followed less than two years. Five patients have had no angina since the ischemic episode and 5 others experience it only rarely.

From the observations recorded in this series of patients we are led to agree with others who believe that:

1. Acute myocardial ischemia is usually the result of acute coronary occlusion,

2. It is often difficult to distinguish clinically between ischemia and infarction, and

3. Subendocardial infarction is probably present in many cases diagnosed only as ischemia.[6]

III. UNEXPECTED SUDDEN DEATH

By "sudden" death we mean the abrupt transition in a matter of minutes or at most of a few hours from a state of relative health or well being to the deceased state; and by "unexpected" we imply that such sudden death could not have been anticipated a few hours before.

In this study we are concerned only with those patients whose death was presumably due to an acute inadequacy of the coronary circulation. We of course encountered other causes of sudden death, recognized by the clinical picture before death or by autopsy. These included: 7 of rupture of an aortic aneurysm (6 proven by autopsy)—1 congenital of the root of the aorta, one dissecting aneurysm nearly three years old, 2 syphilitic of the thoracic aorta and 3 arteriosclerotic of the abdominal aorta; at least 4 cerebrovascular accidents with death within three hours of onset; 5 cases of massive pulmonary embolism, 4 proven by autopsy, and 1 case of exsanguinating gastrointestinal hemorrhage with death within three hours.

We have encountered in the past nine and one half years 58 instances of sudden death presumably due to coronary artery disease. An analysis of these deaths is given in Table 14. Twenty-five of the patients or 43 per cent had had a previous myocardial infarction with recovery, including 17 treated by us during the acute attack. Three patients had had ischemia, and 27 patients or 47 per cent had had

TABLE 14
UNEXPECTED DEATH PRESUMABLY DUE TO CORONARY ARTERY DISEASE

Circumstances of Death	Previous Cardiac Status					
	No Known Disease	Angina	Myocardial Ischemia	Myocardial Infarction	Coronary Disease but Chiefly Congestive Failure	Total
1. Found Dead	0	4	1	8	4	17
2. Seen to fall over and die without complaint	0	0	1	2	0	3
3. Typical coronary artery pain, doctor called but patient dead on arrival of one of us (14 cases) or another M.D. (10 cases)	2	9	1	8	4	24
4. Clinical picture compatible with acute myocardial infarction—seen by one of us but death before EKG obtained and no autopsy	1	6	0	7	0	14
Total	3	19	3	25	8	58

angina, of whom 8 suffered chiefly from congestive heart failure. Only 3 patients had had no recognized coronary disease.

Seventeen patients were found dead: 5 in bed, 4 on the bathroom floor, 3 elsewhere on the floor at home, 2 in bed in the hospital, 1 on the floor of his hospital room, 1 in a chair, and one on the street. Three patients were observed to fall over and die without complaint: 1 at work, 1 at a committee meeting and 1 during sexual intercourse.

Twenty-four patients complained of typical coronary pain but died before arrival of a physician. Death was pronounced by one of us in 14 instances and by some other doctor in 10 instances. Of these 24 patients, 1 died at a carnival ball, 1 on a fishing trip and 1 in his automobile.

The final subgroup consists of 14 patients whom we reached while still alive but who died before an electrocardiogram could be obtained and on whom no autopsy was performed. These patients presented a clinical picture compatible with acute coronary occlusion.

Only 9 patients of the 58 died in the hospital. Three of these presented a picture compatible with acute myocardial infarction but death occurred before an electrocardiogram was obtained and no autopsy was permitted. Five patients were in the hospital for angina decubitus occurring several months to several years after previous myocardial infarction. All died suddenly with no electrocardiographic evidence of new infarction in the latest tracing. Autopsy in one patient showed two old infarctions but no new lesions. One patient with an old myocardial infarction died suddenly after apparent improvement of his congestive failure. Autopsy of this patient also showed two old myocardial infarctions but no new lesions.

DISCUSSION

As practitioners of internal medicine, we respond to emergency calls and to calls to the home. We are thus afforded a broader view of the total spectrum of coronary artery disease than is the consultant cardiologist who sees patients only in the office or hospital.

The surprisingly large number of instances of unexpected death has led us to believe that a falsely optimistic view of coronary artery disease is held by those who regard acute myocardial infarction with its 5 to 20 per cent fatality rate as the most serious complication of coronary artery disease. During the nine and one half year period of this study we encountered 128 attacks of acute myocardial infarction, with 20 deaths, and 58 instances of sudden death, presumably due to coronary inadequacy but not proven to be infarction, and therefore, not eligible for inclusion in statistical studies of infarction alone. In approximate figures this represents (1) one sudden death for every two attacks of acute myocardial infarction (58:127) and (2) three deaths too sudden for exact diagnosis for each death due to proven myocardial infarction (58:20).

SUMMARY AND CONCLUSIONS

1. During the past nine and one half years we have encountered in private practice 128 attacks of acute myocardial infarction, 27 attacks of acute myocardial ischemia, and 58 instances of unexpected sudden death in patients with coronary artery disease.

2. Various analyses of these 3 complications of coronary artery disease have been presented.

3. It is often difficult to distinguish between acute myocardial infarction and ischemia.

4. In our private patients with coronary artery disease unexpected sudden death was almost half as frequent as was acute myocardial infarction and accounted for nearly 3 times as many deaths.

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THE PAINFUL SHOULDER

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Painful shoulder conditions are frequent and may cause prolonged disability. An understanding of the many causes of the painful shoulder is important because proper treatment depends upon the correct diagnosis.

The shoulder region includes four joints that work in harmony to give smooth function. Malfunction of any of these joints interferes with the so-called scapulohumeral rhythm. The shoulder joint has a wide range of motion requiring a loose capsule. The arm is supported by muscles and joint capsule. The four short rotator muscles carry a large part of the weight of the arm. These muscles are the supraspinatus, infraspinatus, subscapularis, and the teres minor. These four muscles fuse into one common tendinous cuff which joins with the capsule close to its insertion into the anatomic neck. These four muscles function to maintain the humeral head in the glenoid while the deltoid and supraspinatus act simultaneously to abduct the arm. Inman, Saunders, and Abbott [4] have shown that there is a constant relationship of scapular to humeral motion, the ratio being two of humeral to one of scapular.

The subacromial bursa is interposed between the musculotendinous cuff and the overlying acromion process. This bursa is usually quite extensive and extends back to the coracoid process and down under the deltoid.

CAUSES OF PAINFUL SHOULDER

The case histories of 136 patients with the chief complaint of painful shoulder were reviewed. In half of these cases the x-rays revealed calcific deposits in the region of the greater tuberosity. These were diagnosed calcific tendinitis because it is known that the calcium deposits originate in degenerating tendinous tissue. Twenty-eight, or 20 per cent, of the group were diagnosed subacromial bursitis. These patients had no calcific deposits in their x-rays but had the tenderness and pain of bursal irritation. Thirteen, or about 10 per cent had enough restriction of motion to be classified as adhesive bursitis; also known as adhesive capsulitis, or frozen shoulder. Another 10 per cent had pain referred to the shoulder region as a result of osteoarthritic changes of the cervical spine. These people tend to protect their shoulders and stiffness is a common complication. Other causes for shoulder pain include tears of the rotator cuff, bicipital tenosynovitis, fibrositis and myositis, old fracture deformities, acromioclavicular arthritis and neoplasms. Referred pain from visceral organs must always be considered in the differential diagnosis. The shoulder-hand syndrome, (reflex dystrophy of the upper extremity), results in a painful, stiff shoulder. No attempt will be made to discuss all causes of shoulder pain but only a few of the more common conditions will be considered.

CALCIFIC TENDINITIS AND SUBACROMIAL BURSITIS

The term subacromial, (subdeltoid), bursitis is commonly used as a "catch-all" in diagnosing shoulder pain. The bursitis is infrequently a primary condition. The most common cause for shoulder pain and disability is due to calcific tendinitis which is a degenerative process involvng the musculotendinous cuff. Codman [1] in his classical book on the shoulder, written in 1934, described clearly these degenerative changes. The degenerative process is apparently due to the wear and tear of everyday living and is most common in white collar workers between forty and fifty years of age. The calcium deposits most commonly occur in the supraspinatus tendon. The exact mechanism of calcium

* Presented at the Seventy-fifth Annual Meeting of the Louisiana State Medical Society, New Orleans, May 4, 1955.

deposition is not known but it has been postulated that it is due to a localized increase in the alkalinity from lack of metabolism of the necrotic tissues. When the *p*H of the local tissues is increased sufficiently, the calcium carbonate and calcium phosphate complex is precipitated. The recent deposits are liquid and with maturity the deposit becomes firm and dry. The bursa becomes secondarily inflamed when the deposit ruptures or when an acute deposit is adjacent to the floor of the bursa. The acute deposits result in intense pain on the basis of increased tension. When the tension is relieved, either by spontaneous rupture into the bursa or as a result of needling, the pain is relieved. The large, dense deposits of long-standing may impinge on the acromion or coracoacromial ligament during abduction and produce symptoms. Certainly not all cases of calcific deposits produce symptoms. We have all seen calcific deposits on routine chest plates in persons who have never had shoulder pain. In reviewing our cases we have seen calcium deposits disappear either with or without treatment. After several years the deposits may reappear in the same place or in another part of the tendinous cuff.

Case 1. A 43-year-old physician came to the office complaining of left shoulder pain of a few months' duration. X-rays revealed small deposits in the region of the greater tuberosity that were not very dense. (Fig. 1 A). After several diathermy treatments the symptoms gradually subsided, although x-rays five months later revealed the deposits to be still present, (Fig. 1 B). Two years later he had an acute episode of the left shoulder pain. X-rays showed a different early fuzzy deposit, (Fig. 1 C). He was treated this time with an injection of xylocaine and hydrocortone, followed by a few diathermy treatments. There was rather dramatic relief of pain. Five months later the deposit had disappeared and he was asymptomatic, (Fig. 1 D).

ROTATOR CUFF TEARS

The degenerative process in the shoulder may be manifested by rupturing of the musculotendinous cuff. These rotator cuff tears are apparently much more common than generally recognized, since the incidence in routine autopsies in the upper age group is quite high. They almost never occur before the fourth or fifth decade,



Figure 1. A physician, aged 43 years, with calcific tendinitis of left shoulder. A: small deposits, not very dense.



Figure 1. B: Deposits still present after five months, although symptoms subsided.



Figure 1. C: Two years later a new deposit. Treated with xylocaine and hydrocortone injections.



Figure 1. D: Deposit disappeared after five months.

except from severe trauma. Many cases of so-called subacromial bursitis are probably small rotator cuff tears.

The tears are either partial or complete. Usually there is just one tendon torn, but rarely there is a massive avulsion with complete inability to abduct the arm. McLaughlin [5] states that a complete tear of the supraspinatus does not prevent active abduction, provided there is not a tear wider than 3 centimeters. One of the physical findings in patients with rotator cuff tears is free passive motion with absence or weakness of active abduction. Stiffness seldom occurs early from a complete rupture, possibly due to the joint fluid having free passage into the bursa. It is interesting that calcium deposits are almost never seen in association with rotator cuff tears. A palpable defect at the site of the rupture is occasionally noted and a characteristic crepitus is felt as the arm is abducted. If the tear is several weeks old, the short rotator muscle bellies will be atrophied and frequently there is compensatory hypertrophy of the deltoid. The x-rays usually show changes at the site of insertion of the cuff, consisting of irregularity and cystic cavitation with areas of sclerosis.

BICIPITAL TENOSYNOVITIS

Bicipital tendinitis or tenosynovitis has been reported more frequently in recent years. It is being recognized more frequently and some writers feel that it is one of the more common causes for the so-called frozen shoulder. The long head of the biceps tendon is enclosed in the bicipital groove by a prolongation of the synovial lining of the joint. The tendon extends into the shoulder joint and attaches to the superior margin of the glenoid. Shoulder motions, particularly in abduction and external rotation, result in the head of the humerus gliding up and down the tendon in its synovial sheath. This excursion is approximately one and one half inches. Any irregularity of the bony groove results in degenerative changes in the bicipital tendon and inflammatory changes in the synovial extension of the joint. The diagnosis is made by localization of the tenderness and pain in the region of the groove. Flexion and supination of the elbow against resistance result in pain at the anterior aspect of the shoulder. De Palma [3] states

that bicipital tenosynovitis is a constant lesion of all frozen shoulders. He believes that in many cases it is the primary cause and in the other cases it is involved secondarily. He believes that when the biceps tendon becomes fixed in the groove from adhesions, or by surgery, the inflammatory reaction will subside and motion will return.

The medial wall of the bicipital groove is sometimes so oblique that the tendon will subluxate. This is an unusual condition but if it is kept in mind the diagnosis can usually be made by palpating the tendon as it subluxes out of the groove. Occasionally, the degenerative process has advanced to such an extent that the proximal end of the tendon will rupture with lifting a heavy weight. This results in the biceps muscle "bunching up" farther down the arm. This will weaken the arm and surgical treatment is indicated, if the patient's age and general condition justify it.

PAINFUL STIFF SHOULDER

The painful stiff shoulder is called by a variety of names and, likewise, is caused by a variety of conditions. It has been called the frozen shoulder, periarthritis, and adhesive bursitis or capsulitis. It is sometimes referred to as the shoulder-hand syndrome when there are elements of causalgia. Every medical practitioner has witnessed the stiff, painful shoulder which results from such conditions as Colles' fracture and osteoarthritis or herniated disc of the cervical spine with nerve root irritation. It is not uncommonly seen after myocardial infarctions. In these chronic cardiac cases it has not been definitely settled whether the frozen shoulder is merely due to disuse or to actual stimulation of sympathetic nerves by cardiac pain producing reflex dystrophy.

Two main essentials for developing frozen shoulder are pain and disuse. Coventry [2] has emphasized that these people have a certain personality type. He noticed that they were hyperemotional and showed hyperactive vasomotor response. This personality type refuses to take the initiative and waits for someone to give the magic cure.

Spontaneous recovery occurs in many patients with frozen shoulder. The reason for this recovery is not known and it may take several months or several years. Not all cases will recover spontaneously and treatment should not be withheld on that assumption.

DIFFERENTIAL DIAGNOSIS

The terms fibrositis and myositis are rather vague terms and do not describe any clear-cut entity. Poor posture may produce painful areas in the muscles and fascia around the shoulder girdle. Diffuse muscle spasm may occur from upper respiratory infections with pain referred to the shoulder region.

Cervical rib and the scalenus anticus syndrome should be considered along with other mechanical factors that could produce pressure on the brachial plexus and large vessels.

A nonspecific brachial plexus neuritis, possibly on the basis of virus infection, may begin with diffuse shoulder pain. These patients usually give a history of recent exposure to cold and damp weather. The prognosis is good in these cases, as a rule.

Old acromioclavicular dislocations with secondary arthritic changes may result in pain on shoulder motion. If the symptoms persist after conservative management, resection of the outer end of the clavicle will usually relieve the pain, although it may weaken the shoulder to a certain extent.

Primary or metastatic tumors to the shoulder or cervical region must always be ruled out.

Rheumatoid arthritis and osteoarthritis of the shoulder joint occur occasionally but offer no particular problem in diagnosis.

TREATMENT

The patients with calcific tendinitis were treated, in the majority of instances, with injections of local anesthetic solution, combined with diathermy and exercises. If the calcium deposit was early, an attempt was made to aspirate it. In recent years, 1 cc. or 25 mgs. of hydrocortone was injected into the area. It is our im-

pression that the hydrocortone has definitely improved our results. The action of the hydrocortone is not definitely known, except that it is anti-inflammatory. The needling relieves tension and scatters the deposit, thus favoring absorption. It is important to tell the patient to expect increased pain for a day or two after the injection and to prescribe suitable medication for pain relief. Diathermy increases the inflammatory reaction, favoring absorption of the deposit. Early exercises aid in prevention of shoulder stiffness. The results in the early cases of calcific tendinitis have been very satisfactory. The chronic cases and cases coming in after development of shoulder stiffness did not respond as quickly or completely. These chronic cases will usually respond to a program of diathermy and active assistive exercises, combined with injections of xylocaine with or without hydrocortone.

Case 2. A 50-year-old white female had been having intermittent right shoulder pain for several years. The symptoms were acute for ten days. X-rays revealed a large, dense deposit, (Fig. 2 A). Xylocaine was injected and a small amount of calcium was aspirated. She was given several diathermy treatments and progressive exercises were started. Three weeks later the deposit was diminished, (Fig. 2 B), and six weeks later the deposit was difficult to see, (Fig. 2 C). She had no pain and had full motion.



Figure 2. 50-year-old woman with intermittent right shoulder pain for several years. A: Large, dense deposit.

There are exceptional cases, some acute, but mostly chronic, which do not respond



Figure 2. B: Three weeks later, after xylocaine, diathermy and exercises.



Figure 2. C: Six weeks, later, deposit is almost gone.

to conservative treatment. In these cases operative evacuation is advisable.

Case 3. A 46-year-old woman was complaining of left shoulder pain of several months' duration. She had previously had three injections into the painful area and six x-ray treatments without relief. X-rays revealed a large dense deposit in the region of the greater tuberosity, (Fig. 3 A). A few days later she was taken to surgery where two or three liquid deposits and several granular deposits were found scattered throughout the supraspinatus tendon. Three months after the surgery she had a full range of motion and was free of pain, (Fig. 3 B).



Figure 3. 46-year-old woman with left shoulder pain of several months' duration. A: Large, dense deposit. Deposit removed at surgery.

The calcium deposits are usually scattered through the fibers of the supraspinatus tendon but may be in the bursa. As much as possible should be curetted. The shoulder should be carefully placed through a full range of motion to break up any intra-articular adhesions. Postoperatively, a period of exercises is necessary to obtain full painless motion. The operation usually results in dramatic relief of pain.

We have not used x-ray treatments for shoulder conditions during the past several years. A large number of patients that we see have completed one or several courses



Figure 3. B: Three months postoperative.

of x-ray treatments, usually without benefit. There have been several favorable reports concerning the use of radiotherapy in the acute case of calcific tendinitis. Since there are inherent dangers in radiotherapy, one should rule out partial tears or degenerative tendinitis before referring the patient to a qualified radiotherapist. Excessive treatments or treatment of the chronic case can result in fibrosis and freezing of the shoulder.

In considering treatment of the frozen shoulder or adhesive bursitis, one should determine, if possible, the original cause of the pain and treat it. One must remember that varied causes, such as pain from the cervical region and myocardial infarctions, can produce this condition.

Once the shoulder becomes stiff and painful, the only way to regain motion is to use the joint. This should be carefully explained to the patient because he must have the determination to carry through with the exercises.

One of the most effective means of treatment is by the physiotherapist. Heat, diathermy, massage, combined with active and passive exercises, will often be all that is necessary.

Injection of trigger points and painful

areas around the shoulder joint with procaine may break up pain patterns and enable the patient to exercise more effectively. In the true sympathetic reflex dystrophy, stellate ganglion blocks may produce dramatic relief of pain.

Bed rest with lateral arm traction and an overhead pulley for active exercises has been a very effective type of treatment for difficult cases.

Salicylates are used freely but narcotics are carefully avoided, due to the prolonged course of treatment. Systemic cortisone has not been used by us, due to the dangers of the drug. We have not felt that the risk involved justifies the use of the drug.

Manipulation is mentioned last because it should be used only after all the other methods have been tried. The indications for manipulation under anesthesia are infrequent but it still has a definite place. It is not indicated for the recent or acute case. It is reserved for the chronic case where adhesions can be broken up in order to initiate recovery. The manipulation must be gentle, in order to avoid tearing the tendons and fracturing the humerus. If too much stretching is done, the joint will freeze up even more. Two or three small manipulations are better than one large rough one.

Head halter traction seems to be the best treatment for cervical radiculitis from either osteoarthritis or cervical disc herniation. The cervical traction can be either continuous or intermittent. Diathermy and massage relieve the muscle spasm. A cervical collar will often be enough to relieve some of the nerve root irritation. The shoulder joint must be mobilized, as described under adhesive bursitis.

In the early stages, bicipital tenosynovitis is treated by resting the part in bed, if possible. The arm should be placed through a painless arc of motion, daily, until the acute inflammation subsides. Hydrocortone infiltration may be beneficial. In the chronic or late stage, the long head of the biceps tendon is sectioned at its insertion in the joint and fixed to the bicipital groove in order to eliminate the gliding mechanism which produces the pain.

Case 4. A 48-year-old white female was seen in the office complaining of right shoulder pain of three months' duration. She said that she had had three x-ray treatments and several injections into the shoulder area, but without relief. Examination revealed a quite tender bicipital groove and she had pain on abduction and external rotation. X-rays revealed a large, dense deposit, (Fig. 4 A). At surgery the calcific deposit was removed. The long head of the biceps tendon was edematous and there were filmy adhesions attached to the inflamed sheath. The tendon was sectioned at its insertion and stapled in the bicipital groove. After three months of physiotherapy she was discharged with a good result, (Fig. 4 B). The diagnosis was bicipital tenosynovitis in addition to a calcific tendinitis.

The majority of writers now feel that early repair of cuff tears is not necessary. Most patients recover function sufficiently without surgery. The muscles of the shoulder are placed in their position of rest, which is at the side, with the arm supported in a sling. Gradual progressive exercises are instituted and the patient is



Figure 4. 48-year-old woman with right shoulder pain of three months' duration. A: X-rays reveal large, dense deposit. This deposit was removed and long head of biceps tendon fixed into groove with staple.



Figure 4. B: Three months postoperative.

observed for a minimum of two weeks in order to permit the muscle spasm to subside and to allow for a more careful examination. If the patient cannot maintain the arm in the abducted position, surgery is usually indicated. At surgery only healthy tissue is apposed without tension. Frequently, one must suture the tendon end to a groove in the region of the anatomical neck through drill holes. Surgery may be technically difficult in these cases. It is usually beneficial to section the coracoacromial ligament and to resect a portion of the acromion and to repair the deltoid. Early pendulum exercises are started. In cases of massive avulsion of the rotator cuff, the prognosis is so poor that primary shoulder fusion is indicated in some of these cases.

SUMMARY

Some of the more common cases of shoulder pain have been discussed with points in differential diagnosis. Most of the painful conditions in the shoulder joint are due to degenerative changes in the rotator cuff. Referred or radicular pain may result in muscular inactivity of the shoulder girdle wth development of the painful, stiff shoulder. Accurate diagnosis and early treatment are emphasized for best results.

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THE TREATMENT OF STRONGYLOIDOSIS WITH WIN 5047; PRELIMINARY REPORT

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Win 5047, N-(2, 4-dichlorobenzyl)-N(2-hydroxyethyl) dichloroacetamine, is under clinical evaluation as a non-metallic amebacidal compound.[1, 2] In the course of investigation we encountered patients concomitantly parasitized with *Endamoeba histolytica* and *Strongyloides stercoralis* in whom this agent apparently eradicated both the protozoa and the nematode.

Since we have been consistently unsuccessful in the therapy of strongyloidosis in both the symptomatic and asymptomatic phases of the infection, we enthusiastically began our therapeutic evaluation of Win 5047 in this infestation. Initial in vitro studies indicated no direct influence of Win 5047 on motile rhabditiform larvae.

Initially a therapeutic regimen of 750 mg. of Win 5047, three times a day for ten days was established, but resistance and recurrence were encountered. Since the compound was well tolerated and has

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Win 5047, Mantomide, was supplied by the Department of Medical Research, Winthrop-Stearns, Inc.

shown no toxicity in extended study [2] we increased the schedule to 4000 mg. daily for twenty days. Resistance and recurrence have been frequent, but a reasonable incidence of eradication prompts this report that more extensive trial may establish the therapeutic status of the drug in strongyloidosis.

Twenty-seven cases treated have been available for an adequate follow-up study under our supervision. All 27 patients had shown no response whatever to gentian violet.

Stool studies after therapy showed persistent parasitization in 14 patients. In 7 patients the infestation was cleared for periods varying from eighteen to ninety-six days, with recurrence in all 7. An additional 6 patients have had no demonstrable recurrence of the parasite; the follow-up has averaged three months, with the longest study nine months. The drug has shown no side effects in any case.

SUMMARY

A well tolerated non-metallic compound, Win 5047, Mantomide, may be a useful therapeutic agent in strongyloidosis. It has proved more efficient and innocuous than gentian violet in a limited study.

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MEDICAL IMPLICATIONS OF H.R. 7225 A SERIOUS THREAT TO AMERICAN MEDICINE

"Vice is a monster of so frightful mien,
As to be hated needs but to be seen;
Yet seen too oft, familiar with her face,
We first endure, then pity, then embrace."

This quotation summarizes the method of approach which socialists in and out of the government have adopted to bring into operation compulsory sickness insurance, socialized medicine, and the welfare state. The threat of just such an action is now pending in Congress. The Bill in question is H.R. 7225, known as the Social Security Amendments of 1955. This legislation first was rushed through the House Ways and Means Committee meeting in brief executive session without public hearings. Then it was passed by the House of Representatives, on July 18, by a roll call vote of 372 to 31, under a procedure suspending the rules, barring amendments, limiting debate to forty minutes, and requiring a two-thirds vote for approval. This precipitate action was taken despite the protests of numerous Congressmen who demanded open hearings and careful consideration of the bill.

This bill is now before the Senate Finance Committee. Hearings are planned during the current month. The danger inherent in this bill is that it is another and most serious step in the series of successive efforts to bring American Medicine into the welfare state. To appreciate the gravity of the situation it is necessary to reflect that under the influence of the socialist group the people of this country have been brought further towards the welfare state in the last twenty years than in all our previous history.

When the Social Security Act was first put into law in 1935, a group of socialist experts tried to have national compulsory insurance included in the original bill. This was excluded at that time. At approximately two year intervals, bills were introduced attempting to establish state medicine in one stroke. Opposition to them was forthright and effective, and they did not come to a vote. In 1950, a different plan was adopted, and the medical profession received its first significant setback in its efforts to prevent state medicine. A bill which came to be the Social Security Act Amendments of 1950 (P. L. 734, Sec. 1405, 81st Congress, 1950) was passed which would supply, among other things, medical and remedial care for needy individuals 18 years of age or older, who were permanently or totally

disabled. The next step in the program was enacted as a part of the Social Security Act Amendments of 1952, providing that persons covered under the act, on becoming disabled, would have their old age benefits frozen at the time of disability onset. It was described as a "foot in the door" bill setting up certification procedures. This was opposed by organized medicine and the clause was inserted limiting its action to one year. Two years later, in 1954, it was reenacted as Public Law 761, this time under Republican administration. The operation of this law is such that in the beginning disabled persons are to go to their own physicians for a certificate of disability. However, when the program is in full swing it is anticipated that a system of government paid physicians will be required.

The next step in this progression of events is H.R. 7225 referred to above. This bill now before the Senate would, among other things, lower the Social Security retirement age for women from 65 to 62; expand compulsory Social Security coverage to all self-employed professional groups except physicians; extend monthly benefits for permanently and totally disabled children beyond the age of 18; and raise Social Security taxes above the previously enacted schedules for the next twenty years. The portion of the bill most dangerous for physicians is the one which would make permanently and totally disabled persons eligible to receive their Social Security retirement benefits at age 50 instead of 65. This is of particular concern to us because these provisions would directly affect physicians in the practice of medicine. Physicians would be involved in determining total and permanent disability, and providing rehabilitation services required by the legislation before cash benefit is paid. It is presumed that in this situation they would be under federal regulation. Physicians, it is obvious, would be under constant pressures from government administrators and patients seeking disability certification, which would cause increasing harrassment of the medical profession.

In this guise, therefore, the bill is clearly another step in the extension of government control over the medical profession.

As has been pointed out, this bill raises grave questions relating to the welfare of our patients. There will be points of conflict in our efforts to discharge our obligations to those whom we serve. In the guise of aiding those who are disabled, it would hamper their return to a useful life. Cash benefits may hinder rather than promote rehabilitation of the disabled.

It is anticipated if this bill passes that the next one will be permanent disability benefits at any age; then cash benefits for temporarily disabled; direct federal payments for hospital and medical costs; and ultimately, full fledged system of tax paid compulsory medical care.

Successive increments of socialism have been introduced in these four bills. The most recent one is obviously the most dangerous. Estimating the amount of danger inherent in a plan of this kind, it should be taken into consideration, as has been pointed out by others, that socialistic manipulation of the machinery of government is attacking American Medicine on at least six major fronts for the purpose of nationalizing the profession. Three of these are the three bills enumerated above. The others are: the Veterans program of medical care for nonservice connected disabilities; the medical care program for dependents of men in the armed forces, for which doctors are drafted under discriminatory, and what should be unconstitutional legislation, to provide free care for those not in military service; and the current effort towards the compulsory inclusion of physicians in the Social Security taxing system.

The profession faces a major attack at this time and in the months just ahead. Every physician should inform himself as to the implications of this bill. He should make every effort to see that his representatives in Congress appreciate the rea-

sons why he and the medical profession are opposed to it. The position of organized medicine may be summarized: that the bill would have a far reaching impact on the practice of medicine and an unpredictable financial effect on the Social Security system. No crisis exists demanding hasty and ill-considered action in a matter so important. Cash handouts would hinder rather than promote rehabilitation.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

DO YOU WANT SOCIALIZED OR FEDERAL MEDICINE?

The following information on H.R. 7225 carrying the Social Security Amendments of 1955 presented by the American Medical Association and Association of American Physicians and Surgeons is furnished to better inform you as to how the Federal Government is attempting to nationalize medicine.

RESOLUTION ON SOCIAL SECURITY

Adopted Dec. 1, 1955 by the House of Delegates of the AMA

Whereas, The Old Age and Survivors Insurance section of the Social Security Act has become an important source of retirement and survivors' security for the American people, and Social Security payments represent an important element of personal income in the national economy; and

Whereas, Liberalizing amendments to the Social Security Act have been so frequently enacted in election years as to justify the inference that political expediency rather than sound public policy was their motivation;and

Whereas, The Social Security Amendments of 1955 (H.R. 7225, 84th Congress) represent an irresponsible political approach to amendment of the Social Security Act, in that this measure was conceived in secret in the Committee on Ways and Means, adopted in brief executive session without public hearings despite the request of many witnesses to be heard, rushed to the floor of the House of Representatives before the report of the Committee on Ways and Means was available, pressured through the House by a maneuver which by-passed the Committee on Rules, permitted no amendments and allowed only forty minutes of debate; and

Whereas, This measure includes sections which would authorize payment of federal cash disability benefits to selected individuals under the Old Age and Survivors Insurance section of the Social Security Act, as a matter of statutory right and without regard for the need of these individuals for cash assistance; and such cash benefits contingent on continued disability are known to be contrary to sound medical practice in the treatment and rehabilitation of the physically and mentally disabled; and

Whereas, The American system of the private practice of medicine, keeping inviolate the physician - patient relationship, has brought to the American people the world's highest standard of medical care, any interference by a third party, government or private, with the physician-patient relationship will destroy the principle upon which our successful system of medical care has been built and will lead inevitably to the deterioration of the quality of medical care available to the American people; and

Whereas, There has never been an adequate, objective, unbiased study of the nature, cost and scope of the Old Age and Survivors Insurance section of the Social Security Act and its economic, social and political impact on the American people; therefore be it

Resolved, That the American Medical Association reiterate in the strongest possible terms its determination to resist any encroachment upon the American system of medical practice which would be detrimental to our patients, the American people, and be it further

Resolved, That the American Medical Association urge and support the creation of a well-qualified commission, either governmental or private, or both, to make a thorough, objective and impartial study of the economic, social and political impact of Social Security, both medical and otherwise, and that the facts developed by such a study should be the sole basis for objective non-political improvements to the Social Security Act, for the benefit of all of the American people; and be it further

Resolved, That the American Medical Association pledges its wholehearted co-operation in such a study of Social Security in the United

States, and will devote its best efforts to procuring and providing full information on the medical aspects of disability, rehabilitation, and medical care of the disabled; and be it further

Resolved, That copies of this resolution be transmitted to the President of the United States, to all members of the Cabinet, to all members of the Congress, and to all constituent state medical associations.

WHY YOU SHOULD OPPOSE HR-7225
(The Social Security Amendments of 1955)

HR-7225 was passed by the House last July and requires only favorable action by the Senate and the President's signature to become law.

Social Security (and HR-7225) is wrong on many counts:

1. It operates under communistic compulsion—the only way it can function;
2. Under compulsion it extracts exorbitant taxes (with no limit) in return for so-called benefits which are not guaranteed;
3. It is actuarially unsound because the compulsorily collected taxes have no relationship to so-called benefits; the amount of forced collections falls billions of dollars short of financing the payment of "benefits";
4. Its continued actuarially unsound operation will require the taxing of our children and their children to pay cash "gratuities" to old and disabled people of our generation;
5. It attacks and destroys the moral fibre of the individual and the nation;
6. It kills initiative and the self respect of citizens who are better able to provide their own "security" than an incompetent bureaucracy functioning in a government almost $300 billion in debt;
7. It is a certain route to socialized medicine and overall Socialism;
8. The 1955 Amendments (HR-7225) would require physicians to practice socialized medicine. Medical certification of disability and medical rehabilitation would be done by doctors under the control and pay of the federal government.
9. Doctors would face the horrible prospect of possible pressures from families, friends, ward politicians and even Congressmen, to certify a man as disabled, and
10. Cash payments to the disabled would encourage malingering and obstruct rehabilitation.

A pamphlet, written by Dr. Marjorie Shearon, editor of Challenge to Socialism, describes and documents how American medicine has been losing ground. We urge you to read the pamphlet carefully. It isn't pleasant reading because it reports factually on how the socialists are taking over the practice of medicine and other parts of our economy. However, we hope it will have the effect of stimulating you, your colleagues, auxiliary members and all patriotic Americans, at all community levels, to take militant action against this legislative monstrosity, HR-7225.

The Senate Finance Committee (Senator Harry F. Byrd, Chairman) will hold hearings on HR-7225 shortly after Congress convenes. AAPS will present testimony in opposition to the measure at the hearings. However, this is not nearly enough. If American medicine is to halt the steady march to Socialism and defeat HR-7225, it is going to require the writing of thousands of letters and wires by thousands of individual citizens to their two Senators and Senator Byrd. Local educational campaigns on the implications of HR-7225 must be conducted and every legitimate medium employed to focus wide public attention on HR-7225 which has been politically inspired as a means of offering bribes to the voters in an election year.

Time is short and we urge you to act at once.

Leaflet No. 4, by Marjorie Shearon, Editor of Challenge to Socialism, listing Social Security facts in her last paragraph has this to say:

"Physicians have lost ground steadily since 1950 in the halls of Congress. They have suffered one defeat after another that could have been avoided. Apathy and despair have been to blame. Unquestionably, 1956 will decide whether American Medicine is ultimately to be taken over by the Federal Government, as in Russia, England. and Germany. H.R. 7225 is the bill that will decide physicians' fate for decades to come. Social Security Amendments are the Legislative Route To The Welfare State."

We implore each and every member of our Society to wire, write or personally contact Senators Ellender and Long and also Senator Harry F. Byrd, Chairman of the Senate Finance Committee, requesting them to do everything within their power to defeat this bill as it now stands with its damaging amendments. Don't delay—do it now—tomorrow may be too late.

ARE YOU INTERESTED?

Our Public Relations Consultants, Perret and Kalman and our Legislative representative, Mr. Percy J. Landry have been very active during the past few weeks in attending District, Parish and Hospital Staff meetings in the interest of our Society and its members, apprising them of the programs inaugurated and being executed for the good of organized medicine and the public. These gentlemen have appeared on the programs of Orleans Parish, East Baton Rouge, Caddo (Shreveport) Parish, the 7th District Society at Lake Charles, the Second District Society and the Staff Society meetings of Mercy and Hotel Dieu Hospitals in New Orleans.

We are in the process of developing a code of

ethics and cooperation between the Society and the Press with the hope of creating better Public Relations between these two groups.

A newsletter will soon go out to all members keeping them informed regarding current problems and events of interest to the membership. We hope to bring you these messages in a brief and concise manner and sincerely hope you will give our efforts due consideration in reading the newsletter. After all, this is your Society and your Consultants in Public Relations and Legislation and associates are merely doing for you that which we sincerely hope you desire us to do.

Won't you help us in furnishing information about you and your members and the activities of your Parish and District Societies in order that your confreres in other sections of the State might be kept informed? Any and all news items will be welcomed and appreciated.

Please remember that our Public Relations Consultants and our Legislative Counselor will be only too glad of the opportunity of appearing on your program and advise with you on any matters connected with publicity, TV or legislation.

If you will write me, your Secretary, every effort will be made to fit our schedule to your program and needs.

Please advise us dates, places and time of your Society or medical staff meetings.

—o—

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

A LOOK AT MEDICAL COLOR TELEVISION

This year color television will make its fourth apperance in the postgraduate teaching program of the New Orleans Graduate Medical Assembly. The addition of color telecasts to the traditional postgraduate teaching programs of professional meetings began six years ago when Smith, Kline & French Laboratories first sponsored this service to the medical profession.

In June 1949, at the Annual Meeting of the American Medical Association, SKF presented the first program of any kind ever to be televised in color. To date, more than 386,000 doctor-visits have been made to SKF telecasts at 79 medical meetings. The TV Unit has not confined itself to this country alone, but has carried medical color television to Montreal and Paris as well.

Permanent color TV facilities already have been installed at four universities and three school-affiliated hospitals, where it is widely employed in undergraduate medical instruction.

Why has color television been received with such wide and enthusiastic acceptance by the medical profession? Because it met an urgent need of modern medical education, a need brought about, ironically enough, by the progress of medicine. Surgery today requires an operating team that surrounds the operating table. Consequently, most of the intricacies of an operative procedure are lost to viewers seated in an amphitheater, even those amphitheaters that are of the most modern design. Thus, as a result of the development of the surgical team, the all-important teaching method of close-up observation by students and interested graduates has suffered a real setback. The difficulty is much the same in teaching clinics. The details of a clinical demonstration often can be seen satisfactorily by only a small number of persons, a situation reducing the clinic's teaching effectiveness.

Color television is "revolutionary" in that it not only reinstates the close-up teaching method, but greatly improves it. Once having seen the ease with which the camera can televise items very small or very large in rapid sequence, a physician can appreciate what it means to stu-

dents and other doctors when the eye of the camera brings them to within inches of operative and clinical procedures.

When the camera is focused on a surgical field, the audience's view is better than that available to some members of the operating team. At a recent medical meeting where eye operations were being televised, the eye as seen on the giant screens was approximately three feet high and four feet wide. While such a vivid picture would be no less than horrible to a lay audience, the almost unlimited possibilities for medical education implied in this same picture should be apparent to every physician.

The possibility of using color television for undergraduate medical instruction does not mean that the staffs of medical schools will have to be part actors, part TV technicians. It does mean that the greatest variety of pertinent clinical material and close-up views of "live" surgical procedures can easily be brought to vastly increased undergraduate audiences. Color television can be expected to count heavily in any future plans concerned with new techniques for medical education.

CHILDREN CAN INHALE SUBSTANCES WHICH CAUSE SKIN DISEASES

Inhaling such substances as house dust and ragweed pollen can cause skin disease as well as asthma in some children, said a Philadelphia physician.

Dr. Louis Tuft, Temple University School of Medicine, reported on "inhaled" allergens in a recent American Journal of Diseases of Children, published by the American Medical Association.

He said for many years allergic eczema, a form of skin disease, was treated like other "eczemas" and was blamed on allergy-producing foods such as milk, wheat and eggs. He said that food can cause this kind of skin disease but that it often results from simply inhaling allergens notably ragweed. Frequently both skin disease and asthma are caused by the same substance.

Chief causes of the disease are house dust, plant pollens, wool, silk, tiny scales from animal hair or feathers, insecticides, and atmospheric molds (particularly in the Midwestern, or grain, areas of the country). Children may get allergic eczema from rabbits, cats, horses, and dogs. While some cases may be treated by desensitizing injections like those used in asthma, the usual treatment is to remove the cause.

Dr. Tuft noted that it is even possible children may be allergic to dander in the scalps of their parents—but this has never been proved. Until it is, he said, "one must withhold judgment," but it does no harm to take precautions.

BOOK REVIEWS

The Human Brain in Sagittal Section; by Marcus Singer, Ph.D. and Paul I. Yakovlev, M. D., Springfield, Illinois, Charles C Thomas, Publication No. 228, 1954. Pp. 81. Price $7.75.

The accuracy and technical excellence of this beautiful atlas of fiber tracts is a tribute to the high standards of the authors and the editors. The logic of having single large sections which give a panorama of the central pathways from the medulla to the cortex is borne out. Twenty-nine sections, enlarged 1.5 times, are prepared to give a complete pattern of the brain from the midline to a point 30.9 mm. from this point. Sixteen of the midline sections are enlarged 2.5 times. This atlas should prove a helpful adjunct to three-dimensional appreciation of the major tracts of the brain for the student at any level.

W. Randolph Page, M. D.

The Clinical Significance of Disturbances in the Delivery of Sweat; by Marion B. Sulzberger, M. D., and Franz Herrmann, M. D., Springfield, Illinois: Charles C Thomas, 1954, 55 illus. pages 212. Price $6.75.

This book deals first with some of the investigative methods for assaying the quantity and other characteristics of sweat. Resulting physiological data are presented.

The author then discusses the pathogenesis and characteristics of disturbances in the delivery of sweat under the headings of hyperhidrosis, hypohidrosis and anhidrosis, and dyshidrosis. The basic pathological, physiological, and pharmacological aspects are presented along with the emphasis on the importance of these sweat disturbances clinically. A considerable number of excellent clinical pictures and photomicrographs are given. In keeping with its title, this book does not deal primarily with the differential diagnoses of any specific skin diseases. The known treatment of the common disturbances is discussed. Numerous avenues for new investigative research are pointed out from time to time.

This monograph provides excellent informative reading on a subject that is important both to the investigative worker and the clinician.

Marvin Chernosky, M. D.

PUBLICATIONS RECEIVED

Philosophical Library, N. Y.: Hypnotic Suggestion; Its Role in Psychoneurotic and Psychosomatic Disorders, by S. J. Van Pelt.

Charles C Thomas, Publisher, Springfield, Ill.: Subacute Bacterial Endocarditis, by Andrew Kerr, Jr., M. D.

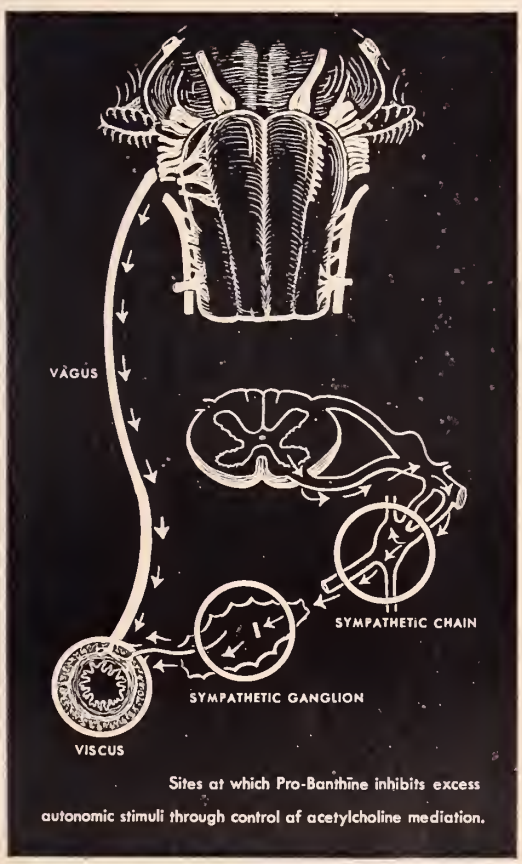
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1. Schwartz I. R.; Lehman, E.; Ostrove, R., and Seibel, J. M.: Gastroenterology *25*:416 (Nov.) 1953.

2. Roback, R. A., and Beal, J. M.: Gastroenterology *25*:24 (Sept.) 1953.

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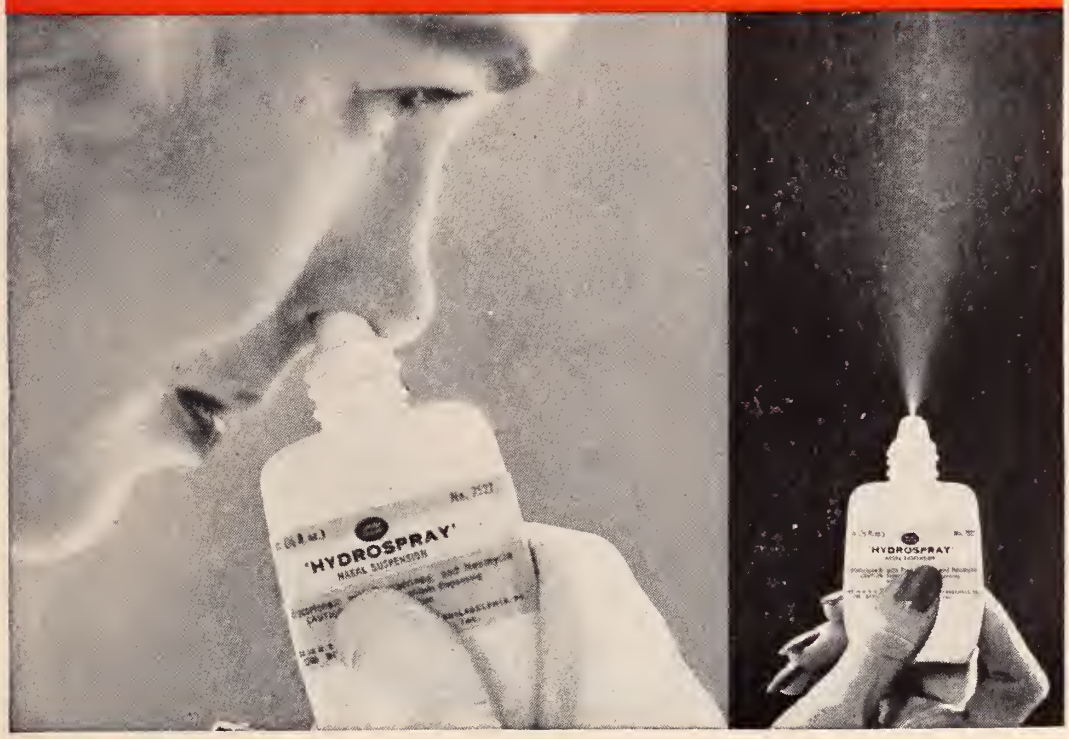
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REFERENCE: 1. Silcox, L. E., *A.M.A. Arch. Otolaryng.* **60**:431, Oct. 1954



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On 6/13 penicillin was discontinued and erythromycin started in dosage of 200 mgm. q.i.d. By 6/17 the discharge had stopped and wound was completely healed by 6/19. Erythromycin was continued until the patient was discharged from hospital on 6/21. Temp. was normal throughout hospital stay.

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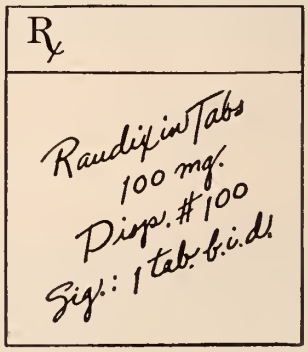
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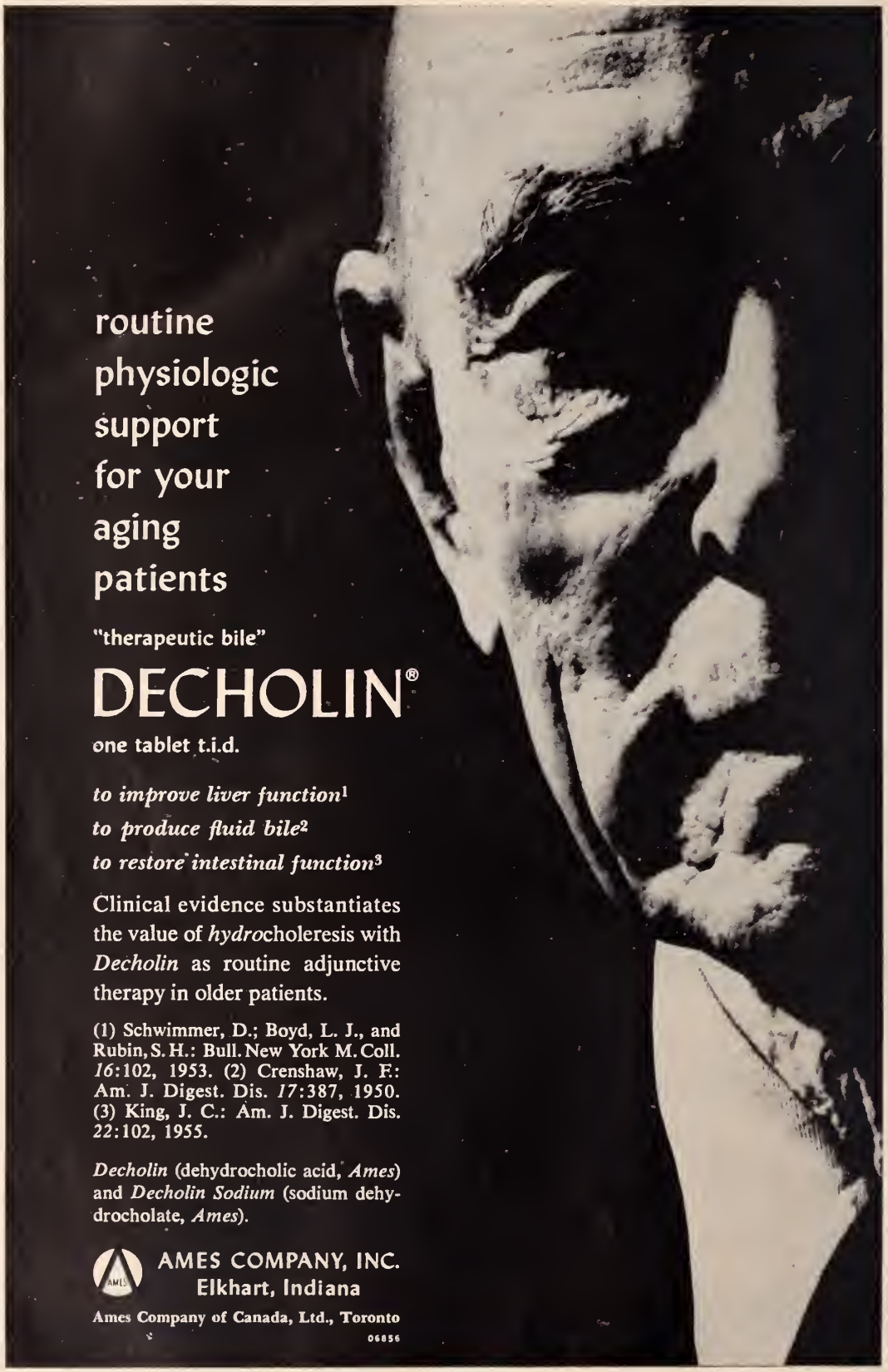
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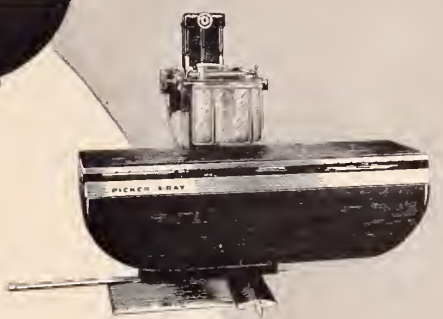
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(1) Schwimmer, D.; Boyd, L. J., and Rubin, S. H.: Bull. New York M. Coll. *16*:102, 1953. (2) Crenshaw, J. F.: Am. J. Digest. Dis. *17*:387, 1950. (3) King, J. C.: Am. J. Digest. Dis. 22:102, 1955.
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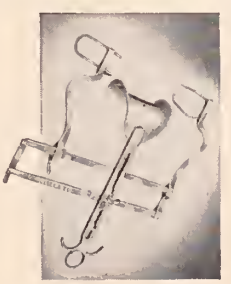
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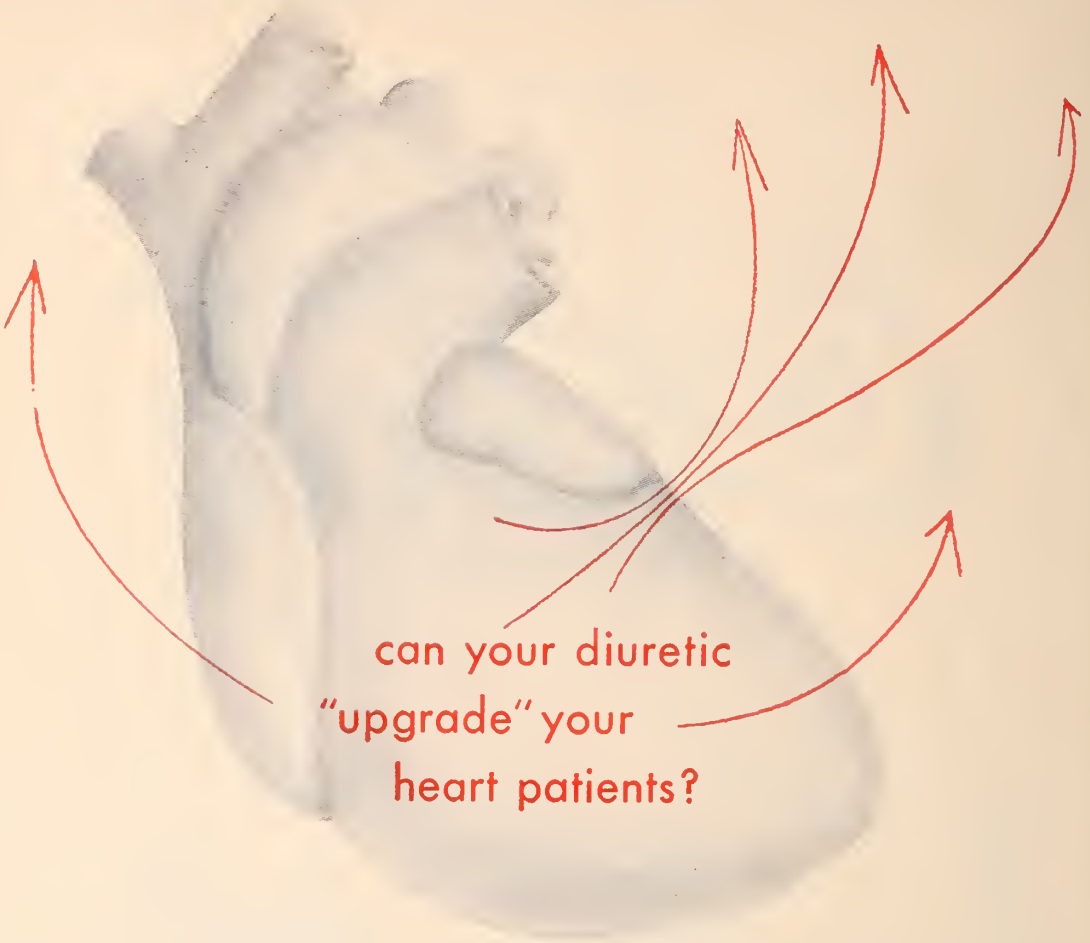
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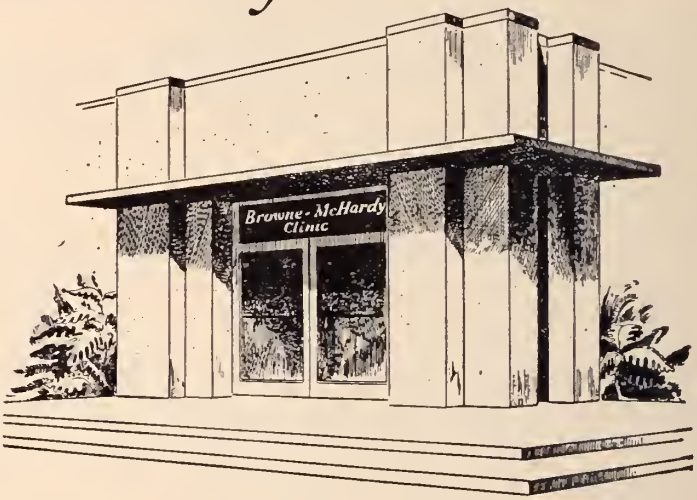
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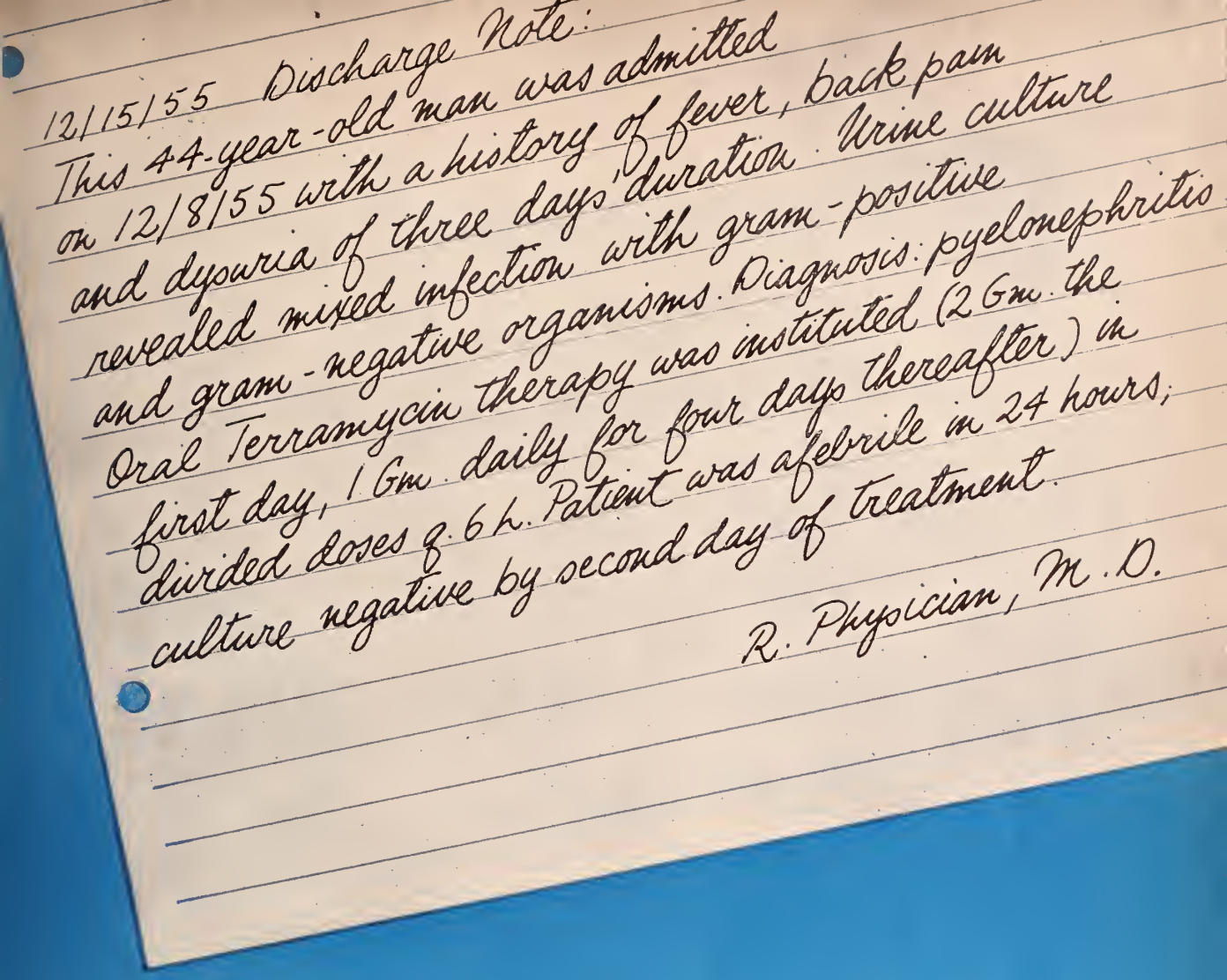
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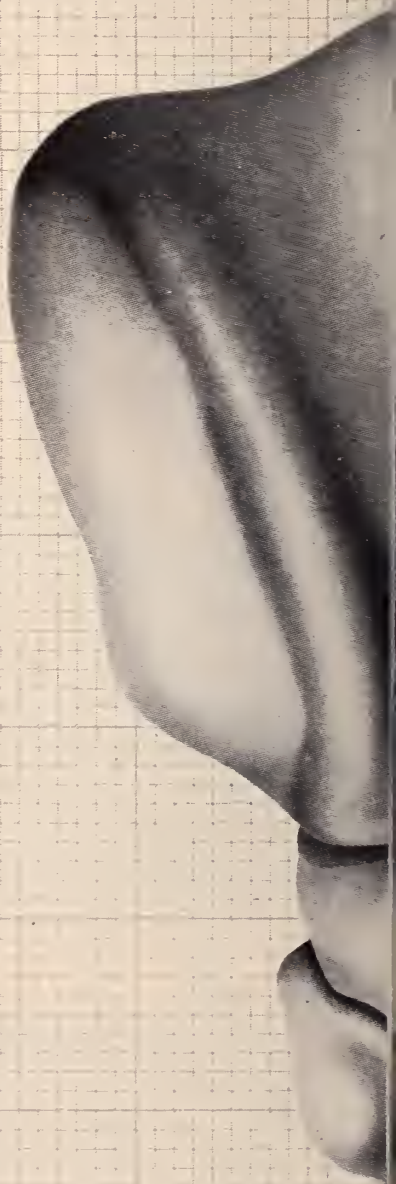
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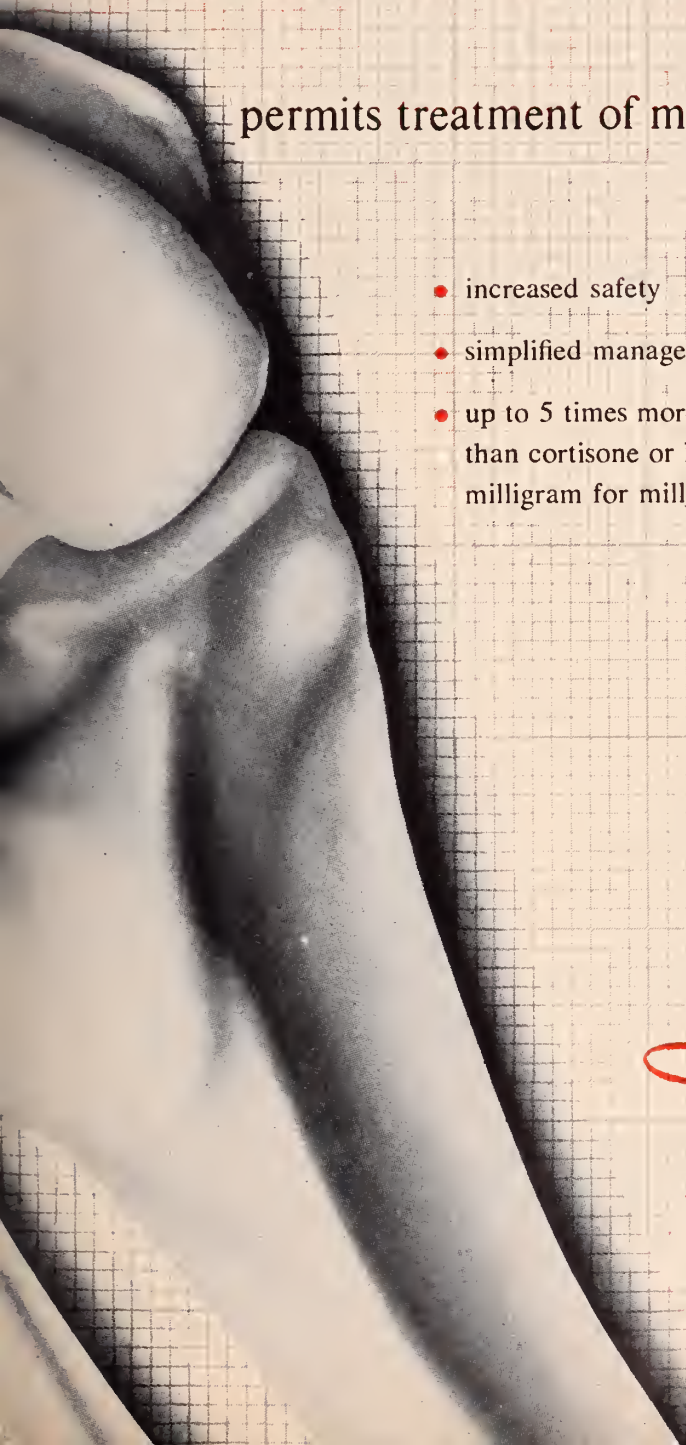
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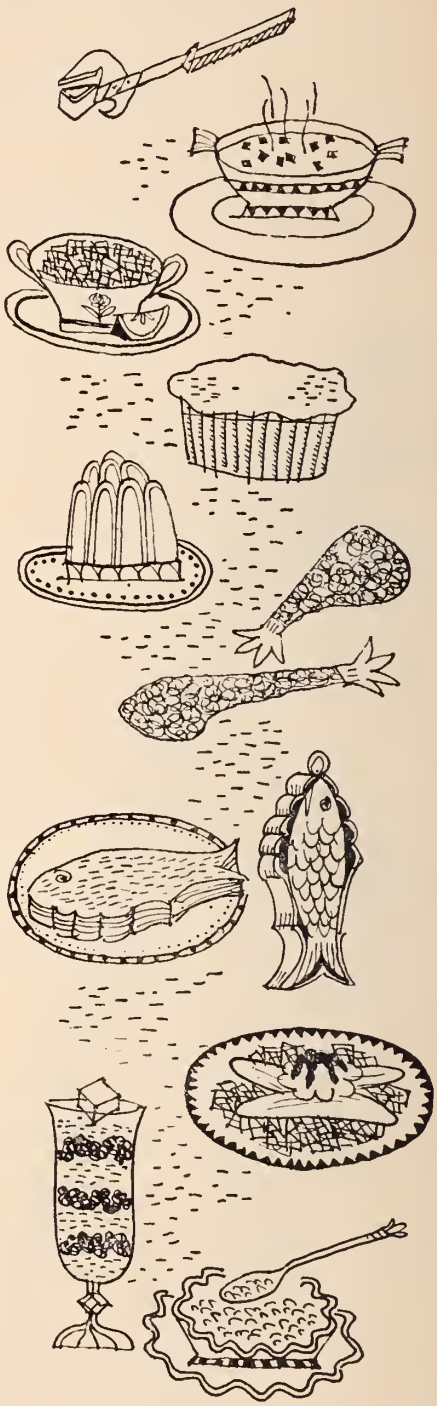
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JOINT MEETING

South Central Region
College of American Pathologists
Louisiana Dermatology Society
Louisiana Pathology Society
and
American Cancer Society, Louisiana Division
Roosevelt Hotel
New Orleans, Louisiana

February 16, 17 and 18, 1956

THURSDAY, FEBRUARY 16, 1956

Workshops:
All workshops will be held in the Louisiana State University School of Medicine, 1600 Tulane Avenue, New Orleans, La. (9:00 - 12:00 Noon; 2:00 - 5:00 P.M.).

Bacteriology:
MARION HOOD, Ph.D.

Forensic Pathology:
STANLEY DURLACHER, M. D.

Hematology:
MONROE S. SAMUELS, M. D.

Instrumentation and Standardization:
RUDOLPH J. MUELLING, JR., M. D.

Mycology:
ALBERT L. MCQUOWN, M. D.
EMMA S. MOSS, M. D.
ROBERT S. COOKE, M. D.

Parasitology:
CLYDE SWARTZWELDER, Ph.D.

Registration in each workshop is limited and registration will be based on date requests are received. Please indicate first, second and third choices. Enclose $10.00 workshop fee at time of request.

FRIDAY, FEBRUARY 17, 1956

8:30 A.M. **Registration** — Lobby, Louisiana State University School of Medicine, 1600 Tulane Avenue, New Orleans, La.

9:00 A.M.—Review of dermatology patients from whom slide material was obtained for following seminar

10:00 A.M. to 5:00 P.M.—Seminar on Dermatopathology
Series of patients, case histories and slides with interpretation by Pathologists and Dermatologists
Moderator:
ANDREW RANIER, M. D., Lake Charles, La.
Guest Conductors:
ELSON HELWIG, M. D., Washington, D. C.
JAMES BURKS, M. D., New Orleans, La.

6:00 P.M. to 7:00 P.M. **Social Hour** (Grand Ball Room —Roosevelt Hotel)
(Host: Louisiana Pathology Society)

SATURDAY, FEBRUARY 18, 1956

(Auditorium—Louisiana State University School of Medicine)
SPEARS RANDALL, M. D., *Moderator*

8:45 A.M. **Registration**

9:00 A.M.—Pathologic Physiology of the Thyroid Gland
SAMUEL B. NADLER, M. D., Ph.D.

10:00 A.M.—Chromatography in the Clinical Laboratory
RUDOLPH J. MUELLING, JR., M. D.

10:30 A.M.—Recent Advances in Serodiagnostic Tests for Syphilis
GEORGE HAUSER, M. D.
MISS LUCILLE GODELFER, M.T. (ASCP)

11:00 A.M.—Bacteriological Procedures Applicable to a Clinical Laboratory
MARION HOOD, Ph.D.

11:30 A.M. **Questions and Answers**
Moderator:
E. C. UHRICH, M. D.

2:00 P.M.—Medicolegal Aspects of Blood Groups
JULIUS W. DAVENPORT, M. D.
RALPH HARTWELL, M. D.

2:30 P.M.—Sudden Death with Syphilic Coronary Disease
STANLEY H. DURLACHER, M. D.
MR. ARTHUR J. FISK

3:00 P.M.—Some Unusual Fungus Infections
EMMA S. MOSS, M. D.
ROBERT S. COOKE, M. D.

3:30 P.M.—Electron Microscopy of Normal and Leukemic White Cells
MONROE S. SAMUELS, M. D.
MR. JAMES FREEMAN

All members of the Profession are invited to the papers. For further information, write to La. Pathology Society, 2004 Tulane Ave., New Orleans, La.

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THE POLIOMYELITIS VACCINATION PROGRAM IN LOUISIANA*

J. D. MARTIN, M. D.
NEW ORLEANS

The Louisiana State Department of Health's experience through December 15, 1955, indicates that poliomyelitis vaccination produced a definite and marked protective effect against all forms of poliomyelitis.

In 1954, Caddo, Bossier and Rapides Parishes participated in the field trials of the National Foundation for Infantile Paralysis of the Salk poliomyelitis vaccine. In these parishes 3622 children received three inoculations of Salk polio vaccine. Through December 31, 1955, two of these 3622 vaccinated children were reported to the Health Department as having developed poliomyelitis in spite of the fact that 80.5 per cent of them resided in Caddo and Bossier Parishes and that these two Parishes accounted for 25.01 per cent of the 378 cases of poliomyelitis reported in 1955. One of these was reported as paralytic and the other as non-paralytic poliomyelitis. An untypable cytopathogenic agent was isolated from the child reported as having non-paralytic poliomyelitis so this probably was not a case of poliomyelitis. No agent was isolated from the stool of the patient reported as having paralytic poliomyelitis and serologic studies did not reveal a significant change in the level of serum neutralizing antibodies so the diagnosis of poliomyelitis is in question for this case also.

The occurrence of reported cases of poliomyelitis in the early months of 1955, when related to the mean occurrence of reported cases during the previous 5-year period, suggested that a greater number of cases of poliomyelitis would be reported in 1955 than for the mean experience of the period 1950 through 1954. (Figure 1).

The National Foundation for Infantile Paralysis began to supply Salk poliomyelitis vaccine to immunize children in the first and second grades of school to the State Department of Health on April 18, 1955. The State Department of Health started its vaccination program immediately.

By April 13, the occurrence of reported cases of poliomyelitis was increased over the 5-year mean experience and remained increased over this experience until June 28. From June 28 through December 31 the 5-year mean experience was appreciably greater than the 1955 experience.

First and second grade children numbered 164,910. Of these children 81,695 received two injections of poliomyelitis vaccine and 83,215 elected not to be vaccinated.

A study of the occurrence of poliomyelitis in the two groups shows that more than seven times as much paralytic poliomyelitis and more than five times as much of all forms of poliomyelitis occurred in the nonvaccinated as in the vaccinated group. (Table 1)

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* Report of the State Epidemiologist to the State Board of Health.

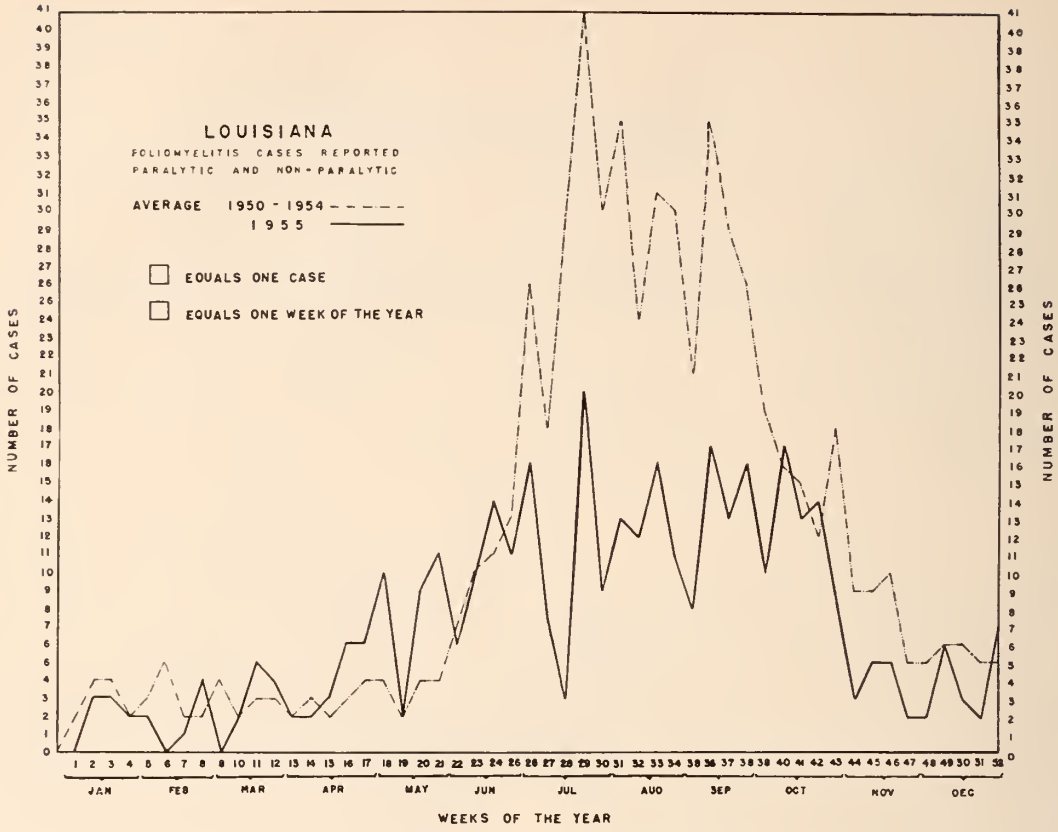


Figure 1

The National Foundation for Infantile Paralysis vaccine was used through September 30, 1955, when the program terminated.

The pattern of occurrence of poliomyelitis in the group of children who were vaccinated against poliomyelitis is different from those who were not vaccinated.

Since the purpose of vaccination is to protect, the number of inoculations with the dose and spacing giving the greatest number of children protection is the pivot around which we must measure. Three injections of the vaccine, with the third injection being given as a booster or recall inoculation seven months after the second, are recommended by the developer of the vaccine as the vaccination procedure which will afford the highest level of demonstrable antibodies in the blood. However, interest is so keen concerning the effectiveness of the vaccine that most states are evaluating on the basis of available experience instead of waiting until after the recall injection and 1956 before assessing the situation.

Arbitrarily in Louisiana, we have designated as vaccinated those children who have been inoculated with the second dose of vaccine at least two weeks. Those children who received no vaccine, who received only one injection of vaccine or who developed poliomyelitis within two weeks of receiving the second inoculation of vaccine, are considered as nonvaccinated. It is possible that if a separate study were made of children who received no vaccine at all and those that received any vaccine at all, but who were not considered as vaccinated children, that the protection afforded by vaccination would be even more manifest, because one injection of vaccine apparently affords some protection and these children with partial protection have been counted in the non-vaccinated group.

TABLE 1
LOUISIANA
POLIOMYELITIS CASES AND RATES BY TYPE OF CASE AND VACCINATION STATUS FOR FIRST AND SECOND GRADES CASES REPORTED AFTER APRIL 18, 1955 *

APRIL 18 THROUGH DECEMBER 15, 1955

Cases and Rates	Paralytic Cases	Rate	Non-Paralytic Cases	Rate	Bulbar Cases	Rate	Total Cases	Rate
**Vaccinated Group 81,695	4	4.9	9	11.0	0	—	13	15.9
Unvaccinated Group 83,215	30	37.2	42	50.4	6	7.2	78	93.7
Overall Totals 164,910	34	20.6	51	30.9	6	3.6	91	55.1

* Vaccination Program began in Louisiana on April 18, 1955.
Rate = Number of cases per 100,000.
Base = All cases reported from April 18 through December 15, 1955 for ages 5 through 9 years.

** Vaccinated Case = Any child in this age group who received two injections of vaccine and whose onset of illness occurred two weeks or more after date of last injection.

The rate per 100,000 population of all reported poliomyelitis in the vaccinated group was 15.9 as compared to 93.7 in the nonvaccinated group. Refining of the data shows the difference in rate of occurrence to be significant for each clinical form of poliomyelitis reported. (Table 1). The difference is particularly marked and gratifying when the occurrence of paralytic poliomyelitis in the vaccinated and nonvaccinated groups is studied. The rate of occurrence of paralytic poliomyelitis in the nonvaccinated group is 37.2, while in the vaccinated group it is only 4.9.

No child who was vaccinated developed bulbar poliomyelitis while 6 children in the nonvaccinated group had bulbar involvement.

Even at this early date there is a measurable difference of occurrence of all forms of poliomyelitis in vaccinated and nonvaccinated children. In 1956, we should acquire a better understanding of the value of vaccination, after the children vaccinated in 1955 and the nonvaccinated children in the same school grades with them in 1956 have been exposed for a calendar year to the risk of poliomyelitis.

No severe reactions to the vaccine were reported. Investigation of reported cases of poliomyelitis in those children who received N.F.I.P. supplied polio vaccine in the State administered program did not suggest in any that the vaccine was the cause of the disease.

One child, reported to the State Department of Health as having poliomyelitis, became ill four days after receiving his first injection of poliomyelitis vaccine from a private physician. This child became paralyzed nine days after injection. Type I and Type III poliomyelitis virus was isolated from the stool of this child. Review of the cases of poliomyelitis studied by the State Department of Health in the period April 18 through November 31, 1955, discloses 4 persons from whose stool specimens two different strains of polio virus were isolated. One, and the only vaccinated person in this group, is the child mentioned above. The other 3 persons were nonvaccinated individuals. Poliomyelitis virus Types I and III were isolated from each of 2 children each less than 4 years of age. Poliomyelitis virus Types II and III were isolated from the only adult in the group—a female. No relationship was established among these four people.

In the period April 18 through November 30, 1955, the State Department of Health, through its parish health units and the four Polio Centers of the State, made every effort to obtain 3 stool specimens for virus isolation studies and paired bloods for serology from each reported case of poliomyelitis and from April 18 until September every effort was made to

have the contacts of reported cases submit stool and blood specimens for the same purpose. An epidemiological investigation has also been made on each person reported since April 18, 1955, as having poliomyelitis to be certain that if vaccine related cases occur that responsible authorities may be alerted immediately.

The National Foundation for Infantile Paralysis poliomyelitis vaccination program administered in Louisiana by the State Department of Health terminated September 30. The Department's present program of poliomyelitis vaccination carried out with vaccine purchased with funds made available through the Public Health Service by Congress commenced October 1, but vaccinations under this program did not begin until the vaccine arrived on October 18. From then until the end of October, 268 persons received first injections of vaccine and 8 second injections of vaccine. In November, 5506 received first injections, 2377 second, and 18 third injections of poliomyelitis vaccine.

With cessation of the N.F.I.P. vaccination program, the Department of Health was relieved of its responsibility for mass immunizations. Planning meetings, started as soon as it became obvious that federal funds would be available to the Department for the purchase of poliomyelitis vaccine, resulted in an intensive study of the whole program, past and future. The study committee recommended, and the State Health Officer approved, that in the future poliomyelitis vaccination be made a part of the regular, routine immunization program of the Department. This was done and all poliomyelitis vaccinations in the State program are now offered through the usual channels of the parish health units to those persons who usually avail themselves of these services.

The demand for vaccination is steadily increasing, but every effort should be exerted to have as many persons immunized against poliomyelitis as quickly as possible to provide the greatest amount of protection against the approaching 1956 poliomyelitis season.

To this end, the State Health Officer requested the State Poliomyelitis Committee, composed of Doctors C. Grenes Cole, Philip H. Jones, Will Barker, and Max Miller, representing the Louisiana State Medical Society and Doctors George H. Hauser, Ben Freedman, Andrew Hedmeg and J. D. Martin, representing the State Department of Health, to meet with him on Wednesday, January 4, 1956, to consider the possibility of stimulating greater use of the vaccine.

The Committee suggested that

1. The priority age group of eligibles for vaccination be extended to include all persons 20 years of age and less and all pregnant women.

2. The profession be advised that poliomyelitis vaccine is freely available through the usual commercial channels and from parish health units, as under previously existing regulations.

3. The medical profession and the parish health units cooperate in developing plans to increase use of the vaccine.

SUMMARY

The experience of the Louisiana State Department of Health indicates that poliomyelitis vaccination is effective in the prevention of poliomyelitis and in decreasing the severity of the disease when it occurs.

Since the vaccine contributes to the prevention of the crippling effects and the occurrence of poliomyelitis, it is suggested that every effort be made to immunize all persons eligible for vaccination as soon as possible.

—o—

MEDICAL MANAGEMENT OF ACUTE RENAL FAILURE *

IKE MUSLOW, M. D. †
NEW ORLEANS

In the past decade there has been a complete revision of therapy of acute renal failure. This change has resulted from a better understanding of the pathology

* Presented at the Seventy-fifth Annual Meeting of the Louisiana State Medical Society, May 4, 1955, New Orleans.

† Department of Medicine, Louisiana State University School of Medicine, New Orleans, La.

and clinical course of this disease. Up until World War II, very few articles were published concerning the nature and treatment of this syndrome. In the past five years almost every medical journal has carried one or two papers reviewing the literature and relating personal experiences. The placement of the artificial kidney in various medical centers has greatly influenced the interest in this syndrome. It has made physicians more and more conscious of its possible development and of its therapy when present. Proper therapy is essential as this is a disease for which one can do too much with resulting death from mismanagement.

For simplification, the term acute renal failure has been designated when there is rapid but only temporary loss of renal excretory function. Known etiologies of this disease are innumerable with a few of the more important and common ones listed in Table 1. Many other terms have

TABLE 1
CONDITIONS PRECIPITATING ACUTE RENAL FAILURE

Crushing injuries
Battle wounds
Major abdominal surgery
Burns
Retroplacental hemorrhage
Eclampsia
Blood transfusion reactions
Intravascular hemolysis of unknown etiology
Infections
Intravascular hemolysis following irrigation of bladder during transurethral resection
Mushroom poisoning
Chemical poison: CCl_4, arsenicals, Hg, etc.
Anaphylactic shock
Sulfonamide reaction

been used for this condition and are shown in Table 2. Though some may be specific in etiology, the resulting pathological picture remains the same regardless of cause. The clinical course and prognosis, however, may be greatly influenced by the event responsible for the onset of this syndrome. This will unfold as the discussion continues.

PATHOLOGICAL FINDINGS

The pathogenesis of this disease has never been completely understood, but

TABLE 2
TERMS USED FOR ACUTE RENAL FAILURE

Lower nephron nephrosis
Acute tubular necrosis
Acute renal tubular failure
Shock kidney
Traumatic uremia
Transfusion kidney
Crush syndrome
Hepatorenal syndrome
Toxic nephrosis
Burn nephritis

appears to be related to reduction of renal blood flow with resulting ischemia and necrosis of tissue. The pathologist recognizes the condition by the gross appearance of a slightly enlarged kidney accompanied by a pale swollen cortex. Microscopically, he finds pigment and hyaline casts in the lower parts of the nephron and necrosis of the epithelium of any part of the tubule. The injury is most constant and usually most severe in the lower segments of the nephron. Necrosis is almost entirely confined to epithelium thereby making the process reparable. Regeneration of tubular epithelium is rapid and can be seen in some cases as early as the fourth day.

CLINICAL PICTURE

For therapeutic reasons, the clinical picture is usually divided into three periods consisting of shock, oliguria, and diuresis. There is marked variation in duration and severity of these stages and not all cases of acute renal failure present a picture of shock.

The stage of shock when present, is readily recognized and presents with its usual features. The stage of oliguria, however, is quite complex and is frequently missed for days following its onset. For this reason, I have elected to spend time on discussion of this phase in regard to its recognition, confusing aspects, and differential diagnosis.

Oliguria has been arbitrarily defined as existing when the urinary output is 400 cc. or less for a twenty-four hour period. Usually the output for the first three or four days is 100 cc. or less, but occasional cases are seen, in which the output never falls below 400 cc. per day. Other cases,

such as exposure to nephrotoxic chemicals, and occasionally, in association with acute hepatic failure, show a characteristic delay in onset of oliguria. In carbon tetrachloride intoxication, oliguria frequently has not developed for three or four days following exposure.

Complete anuria lasting for three or four days is a rarity in this syndrome. In its presence, cases must be evaluated very carefully and the possibility of either urinary tract obstruction or primary renal disease, such as acute glomerulonephritis has to be strongly considered. This is extremely important in cases following lower abdominal surgery in which damage or ligation of the ureters may have occurred. Passage of an ureteral catheter up one ureter will rule out an obstruction.

The oliguria usually lasts on an average of ten to twelve days, but there are cases lasting as long as three weeks. Cases going beyond this three week period are likely to be associated with other types of renal or urological disease.

Certain urinary abnormalities have been observed during the oliguric phase and may aid in its recognition. Initially the urine may be grossly bloody, dark red, or brown. Proteinuria is heavy at the onset but diminishes with progression of the disease. A specific gravity of 1.020 is not uncommon initially, but rapidly approaches 1.010 as the disease continues. Granular casts, broad casts, red cells and white cells are usually found on microscopic examination.

Early recognition of the oliguric phase is of prime importance; in the past, overtreatment has frequently occurred before the picture of oliguria and acute renal failure has been recognized. Being aware of its possible development is the best means for prevention of this tragedy.

THERAPY

Before discussing therapy of this syndrome, it must be realized that patients who have this condition as a result of difficult and prolonged surgery, or as a result of severe trauma, fall into a different clinical category than the previously healthy individual who has the syndrome as a result of mismatched blood or a nephrotoxic poison. To the latter patient, azotemia and acidosis may be of little consequence; whereas to the former it may be extremely hazardous. The mortality rate in these patients even with all forms of therapy is still very high; too often it is not realized that these patients frequently die even in the absence of acute renal failure.

Therapy is handled on a day to day basis and frequently necessitates changes over hourly periods. Each period is treated accordingly and is influenced by the degree and severity of the stage.

The first stage or period of shock is usually related to blood loss, sepsis, or trauma in its many forms. Proper and immediate treatment at this time is the most effective manner of preventing the onset of this syndrome. Properly matched fresh whole blood continues to be the fluid of choice in therapy of blood loss. In cases of severe hemolysis, freshly washed red cells, that have been properly matched by the Coomb's method, can be used. This obviates the danger of overloading the patient when fluid restriction is indicated. Alkalinization of the urine in transfusion reactions and intravascular hemolysis is no longer adhered to, and can be dangerous in the presence of anuria and oliguria.

All injuries are cared for immediately. If amputation is indicated then it should be done as soon as the patient can withstand surgery. Until surgery is possible, the involved extremity should be packed in ice in order to decrease absorption of toxic products and liberated potassium. Antibiotics should be used in liberal quantities for control of infection. Care must be exercised, however, in the administration of large quantities of streptomycin in the presence of prolonged oliguria.

The oliguric phase requires more prolonged and complex management. The most common cause of death in this phase is cardiac failure. This occurs either through overhydration or potassium intoxication. For its prevention, certain rig-

id principles are followed.

An accurate intake and output must be recorded, even if it necessitates an indwelling catheter. All fluid loss from vomiting, gastric suction, diarrhea, and draining sinuses or fistulae should be measured as accurately as possible. The latter two are frequently quite large and not evident unless some means are taken for their measurement.

If feasible, daily weight readings are obtained. This affords the best means of determining water retention that occurs not only from exogenous sources, but from tissue breakdown as well.

Fluid is restricted in quantities sufficient to maintain a constant daily weight; some observers are even in favor of obtaining slight weight reduction. To accomplish this, fluid intake is limited to insensible loss from sweating and respiration plus the amount of measurable loss. The amount of insensible loss will vary with presence of fever and the degree of sweating. Usually no more than 700 to 1000 cc. is required for replacement. It is far better to err on the low side than to administer an excess.

Caloric intake should be at least 400 calories daily in the form of carbohydrate or fat. If nourishment can be taken by mouth, then this affords the easiest and best method for administration. A diet free of sodium, potassium, and protein is used; glucose, peanut oil, salt free butter, and cooked rice can be served and prepared in various manners. Feedings are divided and taken throughout the day rather than in one or two servings. Once vomiting ensues then intravenous fluids is the only means of feeding. In order to maintain caloric intake and at the same time restrict fluids, hypertonic glucose solutions must be used. At the present time research is being done on intravenous fat but has not been approved or advocated.

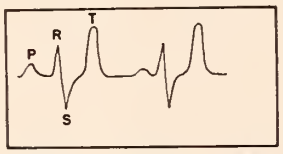
Thorazine has been used with some success in the control of nausea and vomiting. Complicating factors, such as jaundice and hypotension have been extremely uncommon in our hands and certainly has warranted the risk of its use.

The serum electrolytes and chemistries undergo a marked change in the oliguric phase. These changes are variable and to a large degree depend upon the initiating event. A fall in serum sodium concentration is seen in almost all cases. The nature of its fall is not clear but appears to be related to one of three factors or possibly a combination of all three. These factors are presumed to be (1) shift of sodium from the extracellular to the intracellular fluid, (2) shift of H_2O from the intracellular compartment to the extracellular compartment and, (3) dilution of the inorganic ions in body fluids by excess water administration. Although some advocate the administration of hypertonic saline for correction, most workers are in agreement that NaCl administration is not necessary and can easily result in cardiac failure and cerebral edema. If a need is felt for correction then this is best obtained by further water restriction. A correlation between weight reduction and rising sodium levels has been shown in this syndrome. If sodium is lost, however, in considerable amounts by way of gastric suction or draining sinuses, then its replacement by hypertonic saline is required.

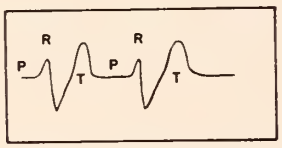
Unlike sodium, serum potassium tends to rise during the oliguric phase. The danger of potassium intoxication is greatest among those individuals who have crush injuries, received multiple transfusions with old blood or in whom infection is present. Potassium intoxication results in cardiac arrhythmias and standstill. Both serum K levels and serial electrocardiograms are taken for following the possibility of this development. Although there frequently is little correlation between the electrocardiogram and serum potassium, the electrocardiogram remains of great clinical importance. Its findings rest not only in the serum K levels but also on total ionic concentrations and their resulting antagonisms. Electrocardiographic findings in both early and late stages of potassium intoxication are shown

in Figure 1. Several methods for preventing a rise in serum K^+ have been mentioned previously. This includes treatment of infection and injuries early in the disease, use of fresh blood for blood loss, administration of adequate calories to prevent tissue breakdown and withholding all K in the diet or fluids.

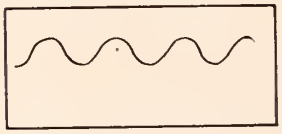
Some workers have used exchange resins administered either orally or by rectum to combat rising K^+ levels. By rectum it is given as the carboxylic NH_3 resin twice daily as a 10 per cent suspension in 250



EARLY—HIGH PEAKED T WAVE



LATE—LOW P WAVE—WIDE QRS; ST SEGMENT DEPRESSION LOWERING OF R WAVE AMPLITUOE



VERY LATE—SINE WAVE

EKG FINDINGS WITH POTASSIUM INTOXICATION
Figure 1

cc. of H_2O. It has been reported that as much as 70 mEq. K per day has been removed in this manner. Should the K^+ rise in spite of all measures, then the artificial kidney is by far the most effective means for removal. Cases requiring this procedure, who are seen for the first time with evidence of late K^+ intoxication on the electrocardiogram, frequently may be given a few hours of safety with reversal of the electrocardiographic findings, by the administration of hypertonic glucose and insulin. It is used in the ratio of 3 gms. of glucose to 1 unit of insulin. This temporarily succeeds in lowering the serum K^+ through glycogen formation and storage. Ca^{++} and Na^+ have also been used for their antagonistic effects to K^+, but their degree and duration of effect is much less than glucose and insulin. Once the urinary tract output exceeds 500 cc. per day, then the handling of K^+ excretion is usually adequate and causes little concern.

During the development of azotemia during the oliguric phase, there is usually progressive lowering of the CO_2 combining power. Unless this is severe or the patient is critically ill, then the acidosis is usually fairly well tolerated and requires no correction. Should correction be necessary, then NaR lactate or $NaHCO_3$ is administered slowly and cautiously.

Hypocalcemia is often present, but not to the same extreme as seen in chronic renal insufficiency; tetany has only rarely been observed. No therapy is usually required for the hypocalcemia.

A rapidly progressing anemia is present in almost all cases. The anemia is not completely understood but at present seems best explained on a shortened life cycle of the red cell. Once the hematocrit reaches a level of 18 to 20, then it appears to level off and remain at this value. Most patients appear to tolerate this level very well. Repeated transfusions seldom cause any significant rise in the hematocrit and frequently result in cardiac failure.

Throughout the oliguric phase, careful attention must be paid to the pulmonary and vascular systems. Too often older patients are maintained through the oliguric phase only to die from a complicating bronchopneumonia or pulmonary embolus. Nursing care in these patients is as important as any other phase of treatment.

Once the urinary output exceeds 500 cc. daily then there is a rapid increase in the day to day output. This period is now known as the diuretic phase. For the first few days after this onset, there may be noticed no improvement in the clinical or chemical picture. There actually may occur further increase in the azotemia and degree of acidosis. Within a few days, however, there is noted marked clinical and laboratory improvement. At this time diuresis may be profound with the volume

reaching as high as 4000 to 5000 cc. daily or more. This occurs even though there may be restriction of H_2O intake. With this diuresis there may be a marked depletion of electrolytes. During this phase both fluid and electrolyte administration must be adequate.

Once recovery is attained, then there is complete recovery of renal excretory function. This as well as the correction of the anemia may take three to six months following recovery from the oliguric phase. Marked tissue loss with resulting weakness in older patients may also take months for replacement and repair.

Little mention has been made of the artificial kidney. In many cases, especially in those associated with trauma, medical management alone is not sufficient and the artificial kidney has to be used. Unfortunately, this procedure does not guarantee eventual recovery in all cases: There still remains a high mortality rate in these cases, which is associated with the initiating factors and not the procedure.

SUMMARY

In summary the following have been stressed:

1. Prompt recognition of the disease with early institution of therapy.
2. Fluid restriction with adequate caloric intake.
3. Use of Na, K, protein free diets.
4. Recognition, prevention and treatment of K^+ intoxication.
5. Excellent nursing care.
6. Adequate fluid and electrolyte administration during the diuretic phase.

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EXPERIENCES WITH PELVIC ENDOMETRIOSIS; REVIEW OF PRIVATE CASES AND PATIENTS AT THE CHARITY HOSPITAL OF LOUISIANA AT NEW ORLEANS *

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Pelvic endometriosis is a serious disease whose incidence is increasing. In comparatively recent times it has become the greatest threat to normal reproductive function that the modern young woman has to contend with.

This is especially true of the young white woman with "advantages" economically and socially. The girl who pursues her education and cultural interests a bit longer and who, therefore, is married a bit later. Or the girl who marries the young professional man with extra years of preparation ahead of him—and pregnancy is deferred. In fact it is true that we as physicians not infrequently must face the toll brought about by endometriosis in our own wives and daughters.

Tyrone and Weed [1] have suggested that the modern tense living of "emancipated woman" bringing about stress may be the forerunner to this condition. Does this cause hormone imbalance, especially of adrenal cortical secretions which sets off the development of ectopic endometrium?

In spite of the several attractive theories advanced, no one seems to be entirely adequate to explain the etiology of this condition.

MATERIAL

This presentation deals only with external pelvic endometriosis which may be

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defined as the presence of endometrial tissue outside of the uterus which is indistinguishable in its microscopic appearance from that found within the endometrial cavity. Our study is based on experiences gained in private practice (M. L. McC) and from a review of all cases of external endometriosis encountered at the Charity Hospital of Louisiana at New Orleans, from January 1, 1939 to December 31, 1953.

In the latter institution there were only 133 patients with proven diagnosis of endometriosis at operation over the fifteen year period studied. Sixty-seven of these were colored and 66 were white. While the total number of laparotomies at this hospital is unknown, some idea of incidence may be gathered from the number of out-patient clinic visits and total admissions to the hospital wards. There were 416,113 visits to the gynecological clinics, 293,460 colored and 122,653 white, from the beginning of 1939 to the end of 1953. Thus, there was 1 case of proven endometriosis for each 4380 clinic visits in the colored and 1 case for each 1858 in the white. During the same period there were 58,427 admissions to the gynecological wards, 36,227 colored and 22,200 white. Of these 1 out of each 541 colored patients (0.18 per cent) and 1 out of each 336 white patients (0.3 per cent) were found to have external pelvic endometriosis.

In the senior author's private practice from January 1, 1944 to December 31, 1953, there were 1018 major gynecological operations, of which 580 were laparotomies. Ninety-two patients (all white), representing 16 per cent of those having laparotomy, had pathologically proven external endometriosis. This incidence is lower than that reported by some; (Meigs[2] found endometriosis in 32 per cent and Sampson[3] in almost 22 per cent of their patients) but in this series there was an unknown number of individuals with very suggestive symptoms and findings of the disease who either became pregnant within a reasonable period of time or whose lesions were nonprogressive and who therefore were not operated upon.

These statistics emphasize the dearth of patients with this disease on a large charity hospital service. It also reiterates the relative infrequency of endometriosis in the American negro, as has been so well described in the excellent report by Weed.[4]

AGE INCIDENCE

Twenty-seven per cent of the patients in the private group required surgery before the age of 30 years and 4 per cent were operated upon after 50. In the Charity group 36 per cent came to surgery by the age of 50 years and only 1 patient with external endometriosis in the entire fifteen year series was operated upon after the age of 50 years.

LOCATION OF ENDOMETRIAL LESIONS

The relative distribution of lesions in the private patient group is shown in Figure 1. The posterior cul-de-sac area including uterosacral ligaments were involved slightly more often than the ovaries.

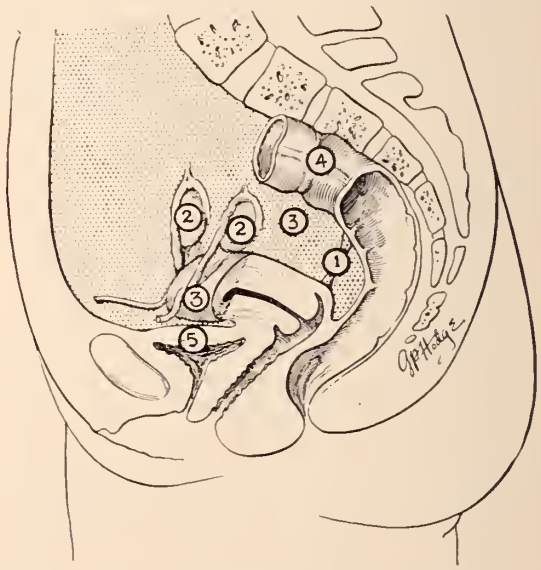


Figure 1. Distribution of pelvic endometriosis in private patient group.

In the Charity group of patients (Table 1) the ovaries were involved most frequently in both white and colored but only slightly more often that the peritoneal surfaces. Cul-de-sac lesions were not described as commonly in the Charity

TABLE 1
EXTERNAL ENDOMETRIOSIS
CHARITY HOSPITAL
1939 - 1953

Sites	White	Colored
Ovaries	42 (61%)	40 (61%)
Cul-de-sac	15 (22%)	26 (39%)
Parietal & Serosal Surfaces	40 (60%)	39 (59%)
Bowel (Rectum & Sigmoid)	3 (4%)	14 (21%)

group as in the private group. The lower bowel was involved five times as frequently in the white as in the colored. Bladder endometriosis was encountered only once in fifteen years in the Charity series, whereas extensive bladder involvement was present in 6 of 92 private patients.

SYMPTOMS

Symptoms listed in order of their relative frequency in the private patient group were:

1. Increasing dysmenorrhea
2. Dyspareunia
3. Infertility
4. Abnormal uterine bleeding
5. Lower abdominal pain
6. Rectal pain (change of bowel habit)
7. Backache
8. Urinary symptoms

It is evident that the significant triumvirate of symptoms is *pain*, *bleeding*, and *infertility*. Table 2 points out the incidence of these symptoms in the private group as well as in the white and colored Charity cases. The increasing infertility in the colored Charity group is probably due to the greater incidence of chronic pelvic inflammatory disease. Only 7 per cent of the colored cases had no symptoms when endometriosis was found. It is our impression that this may be related to the fact that they have more associated pathology and seldom come for medical aid until there is comparatively far advanced disease and definite symptoms are present.

TABLE 2
SYMPTOMS

	Private		Charity			
			White		Colored	
	No. Cases	%	No. Cases	%	No. Cases	%
Pain	72	78	55	83	54	81
Bleeding	49	53	25	38	34	50
Infertility	51	55	36	56	47	70
None	14	15	8	12	5	7

The fact that 15 per cent of the private and 12 per cent of the charity white patients had no symptomatology in association with endometriosis is notable. Many of these had extensive lesions and were surprise findings at laparotomy.

ASSOCIATED PELVIC PATHOLOGY

It is commonly believed that about 20 per cent of women have congenital retrodisplacement of the uterus. In private patients with external endometriosis 41 per cent had uterine retroversion. Thirty-three per cent of white Charity patients had this accompanying condition; whereas only 4 per cent of colored patients had retroversion of the uterus noted on their charts.

Table 3 reveals that much more associated pelvic pathology was present in colored patients with external pelvic endometriosis than in the white. Thirty-six per cent of the former had myoma uteri while only 18 per cent of the white Charity patients had such tumors. Twenty per cent of the private group had myomata but most of these were of insignificant size. No pelvic inflammatory disease was noted in the private patients; whereas in the white Charity group 17 per cent had pelvic inflammation, 6 per cent of whom had accompanying myoma uteri. In contrast, 57 per cent of colored patients had pelvic inflammatory disease, 45 per cent of whom also had fibroids.

TABLE 3
ENDOMETRIOSIS
CHARITY HOSPITAL
1939 - 1953

Accompanying Pathology	Colored	White
Uterine Retroversion	3 (4%)	22 (33%)
Myoma	24 (36%)	12 (18%)
Myomata and Chronic Salpingitis	30 (45%)	4 (6%)
Pelvic Inflammatory Disease	8 (12%)	7 (11%)

DIAGNOSIS

The specific diagnosis of pelvic endo-

metriosis can only be made at operation. Preoperative diagnosis is usually difficult. Nodularity in the region of the posterior cul-de-sac and uterosacral ligaments on rectovaginal palpation is most characteristic. This may or may not be associated with adherent retrodisplacement of the uterus. A fixed adnexal tumor mass such as is caused by an endometrial cyst of the ovary is a suggestive finding but other types of ovarian neoplasia cannot be excluded. Inasmuch as chocolate cysts of the ovary rarely attain the size of other common ovarian tumors, the presence of palpable abdominal tumor due to endometriosis is unusual.

Eighty-two per cent of private patients with endometriosis were suspected of having the disease and in 18 per cent the diagnosis was missed. On the other hand, only 15 per cent of charity cases with this condition were suspected of having it before laparotomy was performed. This discrepancy between the two groups may be due to the great amount of other pelvic pathology present in the charity cases as well as the increased index of suspicion which is bound to be developed in private practice.

THERAPY CARRIED OUT

Only patients with proven diagnosis of external pelvic endometriosis are included in this study so that all had some type of surgery.

Eighty-one per cent of charity cases had abdominal hysterectomy and removal of ovarian tissue, while 19 per cent had some conservative operation. On the other hand, 27 per cent of private patients had conservative surgery. Of those in the private group who had extensive pelvic surgery, 42 per cent had had previous conservative procedures done for endometriosis. Only 0.67 per cent had previous pelvic surgery for endometriosis in the charity series.

DISCUSSION OF MANAGEMENT

Our own approach to the management of pelvic external endometriosis is in agreement with that of Gardner [5] and includes the following:

1. Watchful waiting
2. Hormonal
3. Irradiation
4. Surgery

The approach should be individualized in each case.

Watchful Waiting. — In our experience there is a group of very young patients who may be managed successfully by merely following them carefully, urging early marriage and pregnancy. This includes those about to be married, recently married or those only lately attempting to become pregnant whose findings on palpation are minimal. Pregnancy is undoubtedly the best conservative therapy available and these patients may safely be given a chance to prove themselves along this line if they are followed every two or three months with careful pelvic examination. If pelvic lesions enlarge and symptoms worsen, *or* if infertility without other demonstrable cause is established after eighteen to twenty-four months of effort, laparotomy is carried out. Although we have no statistics available to present, we have been impressed how often these patients will become pregnant. It is in this group that hormonal therapy is frequently used but we must be wary of crediting the medication with the successes obtained.

In older patients, especially those in the premenopausal period, the development of nodularity in the posterior cul-de-sac precludes any approach but surgery in our opinion because of the greater likelihood of the development of ovarian carcinoma in this age group.

Hormone Therapy. — Both androgenic and estrogenic therapy have been used with some success for pelvic endometriosis, although at the present time the use of endocrines must be looked upon as a temporary approach.

Methyl testosterone by mouth 10 mg. per day (not exceeding 300 mg. per month) will aid many patients symptomatically, but very few with extensive lesions will respond favorably in our experience. This regime may be used for four to six months and repeated after three or four months. The greatest bene-

fit of such therapy is the lessening of dysmenorrhea in patients with minimal findings. The smaller dosage of 160 mg. given 20 mg. per day from the sixth to the fourteenth day of the cycle will allay the pain in some of the milder cases just as it will in primary dysmenorrhea. Signs of masculinization should be carefully watched for since they sometimes occur even with comparatively small dosage.

Karnaky [6] and a few others have reported good results with large doses of stilbestrol so as to depress ovulation and menstruation for from four to six months. Very large doses of the substance must be used to bring this about and a regime which space does not permit us to repeat has been outlined. Occasionally, a patient will become pregnant immediately after the cessation of such treatment. Our experience with this approach has not been a broad one and on a few occasions there have been exacerbation of symptoms, enlargement of lesions and prolonged uterine bleeding immediately following the termination of this therapy.

Irradiation Therapy. — Except for the rare patient who refuses surgery we have limited the use of irradiation therapy to individuals who have had previous surgery and, at a late age, have recurrence of small lesions giving rise to significant symptoms. Surgery is usually better therapy, for it rules out malignancy and adjusts accompanying pathology such as marked adhesions which may cause serious difficulty in the future even though the patient is castrated.

Surgery. — Finally, in our opinion, surgery is the type of therapy most often called for when a significant degree of progressing external endometriosis is suspected. *Conservative surgery* is not only justified but definitely indicated in the presence of pelvic endometriosis of significant degree for the sake of childbearing. This type of surgery should aim to bring about excision or obliteration of as much of the disease as possible, as well as alleviation of symptoms, while preserving reproductive potential.

Before such surgery is performed, however, the patient and her husband should be thoroughly studied in order to determine other causes of infertility. The failure to carry out such an investigation preoperatively has all too often resulted in predestined disappointment and the withholding of better indicated surgical procedures. The husband should be examined and have his semen evaluated. The patient should be checked to make certain she ovulates properly by studying endometrial biopsy and basal temperature charts. Patency of the Fallopian tubes must be determined by Rubin test, or better, by hysterosalpingography which also provides valuable information concerning the endometrial cavity and the uterus itself, especially in regard to tumors or congenital malformations. We feel strongly that this procedure should be an integral part of preoperative study when conservative surgery for endometriosis is contemplated. All cervical abnormalities such as infection and stenosis should be cleared up and, if there has been abnormal uterine bleeding, it is wise to precede laparotomy with dilatation of the cervix and curettment of the endometrial cavity.

Even though all of these studies have been carried out and there seems to be no reason for infertility other than the endometriosis present, the final decision as to whether the conservative approach may be adhered to depends finally upon what is revealed when the abdomen is open. First, adhesions should be lysed and lesions excised from the ovaries so as to leave only normal tissue while making as certain as possible that the fimbriated ends of tubes are free and mobile enough to come into close contact with the ovaries.

The blueberry spots and puckered fibrotic lesions so frequently encountered in the posterior cul-de-sac, along the uterosacral ligaments and over the peritoneal surfaces should be biopsied and, if there are but few, excised. When these lesions are widespread, it is better not to attempt complete excision because of the large areas completely denuded of peritoneum

which would result. For a number of years the senior author has split each small pathologic area with a scalpel before coagulating the interior of each half (using the coagulation current of the Bovie unit). (Fig. 2). In this way more complete destruction of the endometrioma is carried out. Recently Sturgis [7] has pointed out that the most painful lesions of external endometriosis are those encased in fibrous tissue. This concept gives us a more concrete reason for using the technique described which we have felt has given us much better symptomatic relief than other local procedures for the destruction of these tiny but highly significant pathologic areas.



Figure 2. Splitting with scalpel of small endometrial lesions following which the endometrial cores of each half are coagulated.

Uterine suspension is done whenever the uterus is retrodisplaced. The subperitoneal Baldy Webster operation [8] is used with excellent results. A modification of this procedure is especially suited for those cases where one adnexa is removed and the round ligament is utilized to peritonealize the cornual area (Figure 3). Other techniques frequently bring about torsion or an abnormal pull upward on one side of the uterus.



Figure 3. Unilateral subperitoneal Baldy-Webster operation for suspension of uterus after removal of one adnexa.

It is important to have evaluated the type and distribution of pain before conservative surgery is done. If severe midline dysmenorrhea has been present, presacral neurectomy should be carried out. If there is unilateral pain in the region of an ovary, the infundibulopelvic ligament of that side should be divided (ovarian neurectomy). When dyspareunia has been severe, division of the uterosacral ligaments interrupting branches of the pelvic nerve may provide relief.

We believe that well planned conservative surgical measures will relieve the symptoms of most patients and provide a better opportunity for pregnancy to occur. Twenty-seven per cent of private cases were treated in this manner and 24 per cent became pregnant within two years. In the charity series 19 per cent had some conservative procedure and 6 per cent became pregnant within four years. The patient and her family should be told that further pelvic surgery may be necessary later. That such conservative procedures are indicated, however, seems obvious when 1 out of 4 of private patients conceived within a comparatively short period of time, whereas it has been estimated by others that not more than

15 per cent will need subsequent surgery.

When reproductive function cannot be saved, panhysterectomy should be carried out. If all apparent endometriosis can be removed, some normal ovarian tissue may be saved with reasonable safety at the time of hysterectomy in premenopausal patients. It has been stated that 4 to 5[9] per cent of these cases will have recurrences calling for further surgery or irradiation. Definitive cure of external endometriosis and its complications, however, may be brought about by panhysterectomy *and* the removal of *all* ovarian tissue.

SUMMARY

1. Experiences with external pelvic endometriosis in private practice and in white and colored charity patients are compared from the standpoint of incidence, age, location of lesions, symptoms, associated pelvic pathology, diagnosis and treatment.

2. Several approaches to the management of this disease are taken up from the practical point of view.

3. The value of conservative surgery is stressed and certain new points in technique are described.

4. The importance of complete infertility study of the patient and her husband before conservative surgery is done is emphasized.

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THERAPEUTIC ACHIEVEMENTS IN AMEBIASIS *

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Amebiasis no longer presents the prevalence, grave prognosis, or therapeutic resistance accredited to the disease in this country early during the present century.

INCIDENCE

In 1923, Craig [1] estimated that 10 per cent of our population was parasitized with *Endamoeba histolytica*. A survey by one of us (G. M.), in 1953, revealed a cosmopolitan distribution of amebiasis but a lower incidence of 3.7 per cent, attributable largely to improved water supply.[2] Contamination of drinking water by sewage accounted for two epidemics in the United States, one in Chicago, Illinois, in 1933, and the other in South Bend, Indiana in 1953.[3] Unsanitary food handling and transfer of fomites probably accounts for the high institutional, military, and rural occurrence, which is far in excess of that estimated for the general population.

MORTALITY AND MORBIDITY

Fatalities due to untreated amebiasis or its complications, primarily in unrecognized cases, are still recorded.[4-6] Greater awareness on the part of physicians, as well as improved diagnostic aids and therapeutic results, have reduced the morbidity through intelligent, complete eradication of the parasite whenever it is detected. Faust [7] indicted the term "carrier state" so strenuously that most parasitized persons are now adequately managed, precluding transformation of this state into symptomatic colitis and the dreaded hepatic complications. Whereas the State

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Boards of Health obviously cannot obtain accurate statistics on incidence, death and and its cause are inseparable, and the mortality figures are therefore valid. In Louisiana, 83 deaths have been accredited to amebiasis during the decade 1944-1953, as compared to 241,868 deaths from all causes (a ratio of 1 to 2914), indicating the low incidence of fatalities from this disease.

FACTORS INFLUENCING THERAPEUTIC RESPONSE

Analysis of the extremes in therapeutic achievement suggests variance in susceptibility of parasitic strains and in severity of the disease, inconsistency and inadequacy of follow-up examinations, and lack of understanding of the proper management of the disease in its various phases. Our study has revealed an extremely low incidence of intractability.[8, 9] The assumption of therapeutic resistance is possibly explainable on two bases: (1) inadequate therapy and (2) incorrect diagnosis. Inadequate treatment characterized the therapeutic history in 152 of 238 patients labeled intractable. The question of incorrect diagnosis cannot be established, but lack of any sustained therapeutic response during treatment and incompleteness of diagnostic survey were suspected in 86 of these patients considered refractory to treatment. Technical accuracy in certain segregated laboratory diagnostic groups with unusually high prevalence of intractable amebiasis is subject to suspicion, especially when meticulous studies elsewhere on the same individuals fail to confirm the original diagnosis but identify these subjects instead as wandering psychosomatic patients. It is distressing that no simple diagnostic test has proved sufficiently accurate to rule out the pathogenicity of organisms or objects labeled *E. histolytica*. If all cases of so-called intractable amebiasis were confirmed by iron hematoxylin staining study of the causative organisms, then the diagnosis could be considered established. The simplified staining method of Suter and Vaughan is recommended.

Additional factors that may have altered the status of clinical amebiasis are extensive use of the wide spectrum antibiotic agents, which have been accredited direct or indirect amebacidal efficiency in the management of all infectious diseases, and the tendency toward empiric treatment of all patients suspected of having amebiasis. No definite conclusion regarding the influence of the antibiotic drugs is justified, for the amount administered has frequently been insufficient to effect amebacidal action. In fact, it has been suggested that sublethal doses enhance the virulence of *E. histolytica*. On the other hand, empiric treatment of all patients suspected of having amebiasis seems to be a definite contributory factor. In a survey of 3,760 physicians interviewed at our exhibit on "Antibiotic Amebacides" at the meeting of the American Medical Association in 1954, 3,252 (86.5 per cent) admitted this practice. In our personal survey in 1954, 56 patients with one or more of the clinical manifestations, radiologic interpretations, or proctosigmoidoscopic picture of amebiasis, but without actual demonstration of *E. histolytica*, have responded to amebicidal therapy. In the same period, we have surveyed 108 cases similarly diagnostically impressive of amebiasis, but again without isolation of *E. histolytica*, with no response to antiamebic measures. A presumptive diagnosis of amebiasis may justifiably be entertained if the clinical picture is compatible and the therapeutic response is prompt and complete. However, many amebacides, by virtue of iodine, arsenic, and bismuth content, as well as antibacterial influence, are effective in the management of colonic hypersecretory, hypermotile, and inflammatory states. Furthermore, bacterial, nonbacterial, and functional colonic disturbances are prone to spontaneous remission.

TREATMENT

The therapy of amebiasis must satisfy three requisites: (1) symptomatic relief, (2) curative promise, and (3) supportive adjunct. Because of complex factors associated with parasitization in some in-

stances, no one amebacidal agent has as yet been established as an infallible amebacide. Treatment of each patient, therefore, must be individualized according to the demands of the case, i.e., specific physical status, severity of manifestations, duration of involvement, and extent of tissue invasion.

In reviewing the publications on newer amebacides, one must be aware, as expounded by Hamilton,[10] of the pragmatic problem of treating the individual parasitized patient with an established therapeutic regimen as well as of the independent, experimental problem involving new amebacides. Hamilton,[10] stated: "In choosing drugs for therapy, it is fair to state that one drug is not necessarily superior to another. The choice will be based on a number of factors, such as the relative toxicity, the specific response of patient, the cost of drug, the desirability of ambulatory treatment, and the physician's experience with a compound."—a statement of fact that the thearapist must not ignore.

Laboratory evaluation alone of an amebacide is not entirely satisfactory, since some agents that are ineffective on in vitro study are extremely efficient amebacides clinically. Animal experimentation is more useful in toxicologic and tolerance study than in evaluation of therapeutic efficacy because of certain influencing factors in human subjects, such as alteration in the drug, excitation of host resistance, and change in colonic flora. Estimates of efficacy are further hazardized by spontaneous cures, cyclic disappearance of amebae from the feces, and environmental contribution in the way of reinfection.

CLINICAL INVESTIGATIONS OF NEWER ANTIAMEBIC AGENTS

New agents are of interest to three groups of people: (1) the producer, (2) the research evaluator, and (3) the clinician. Marketing of a new, more efficient, and innocuous drug is the pharmaceutical aim, establishment of therapeutic status is the purpose of the research clinician, and proof of clinical efficacy depends on the practicing physician. The drugs presented herein have withstood preliminary studies and may soon be available to the practicing physician. Their future status will depend on continued clinical evaluation.

Antibiotic Amebacides.—Although antiamebic qualities have been accredited to many antibiotic agents, only Fumagillin and Oxytetracycline have established amebacidal efficacy, and this is limited to the intestinal phases of the disease.[11] The side effects of both are well recognized. The expensiveness of Oxytetracycline is an additional disadvantage. We have had no personal experience with Tetracycline, but its absorbability with diminished fecal concentration would indicate a therapeutic efficacy below that of Oxytetracycline.

We have evaluated two recently available presumed antibacterial antibiotic drugs, Erythromycin and Anisomycin. Erythromycin stearate,* in the opinion of Anderson and associates,[12] has excellent promise. Since it is well absorbed, with excellent hepatic and other tissue concentrations, it may represent a potentially omnipotent amebacide. We are now inclined to conclude that Erythromycin, 200 mg. administered four times daily for ten days, is an excellent conditioning agent in amebiasis, enhancing the effect of other amebacides, presumably by altering bacterial flora, but is not in itself a completely efficient amebacide. In a previous publication,[13] we reported Erythromycin stearate to be 82 per cent efficient when used alone and, when subsequently combined with another agent, Win 5047 (Mantomide †) in 26 patients, to have a combined efficacy of 96.2 per cent. Relative absence of side effects outweighed the disadvantage of expense of this drug.

Anisomycin (PA-106, Flagicidin ‡) has been introduced as antitrichomonal and

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* Supplied by Abbott Laboratories, Research Division, N. Chicago, Ill.

† Supplied by Sterling-Winthrop Research Institute, Rensselaer, N. Y.

‡ Supplied by Charles Pfizer and Co., Antibiotic Division, Brooklyn, N. Y.

antiamebic in in vitro studies.[14, 15] Because it gave such promise in laboratory evaluation, clinical trial was enthusiastically sponsored. A dose of 10 mg. thrice daily for ten days was fairly well tolerated by 10 volunteers. Four of these experienced nausea, abdominal distention, and mild diarrhea. No hematologic, renal, or hepatic abnormality was encountered on laboratory study at the completion of testing. On therapeutic trial of 30 mg. of Anisomycin daily for ten days to 10 patients and 40 mg. daily to 6 patients, all parasitized with *E. histloytica,* this agent was curative in only 5 of the first group and 3 of the second group at a thirty day post-therapeutic survey. More recently, coated tablets have been used, permitting better tolerance of doses up to 60 mg. daily. Of 12 patients on a dosage schedule of 60 mg. for ten days, 1 showed persistent parasitization and 3 showed recurrence within thirty days; there were 2 additional recurrences at ninety days. All cases have been followed for hematologic, renal, and hepatic toxicity without any untoward reaction having been encountered. Nausea has been common to over 50 per cent of patients. More extensive trial on a dosage schedule of 60 mg. daily for ten days should be carried out to establish tolerance to Anisomycin and its efficacy as an amebacide.

Nonantibiotic Amebacides.—Of the nonantibiotic amebacides, we have hoped for an efficient nonmetallic agent that would eliminate the iodine and arsenical side effects. Our published work on Win 5047, indicating a therapeutic efficiency of 88 per cent, favors its continued trial.[16]

More recently, we have evaluated Win 12051,§ N-(2,4-dichlorobenzyl)-B-(2-ethoxyethyl) dichloroacetamide, introduced as a nonmetallic, nontoxic compound potent as an amebacide in both in vitro and animal experimentation.[16a] Absorption and excretory studies have demonstrated that it is approximately 80 per cent recoverable from the feces, indicating its lack of applicability in tissue phases of amebiasis. Our initial studies in 10 volunteer human subjects revealed that a dose of 4.5 Gm. administered daily for ten days was well tolerated, with no evidence of untoward renal, hematologic, or hepatic influence during the treatment period or for thirty days thereafter. Eighteen patients parasitized with *E. histolytica* were given 1.5 Gm. three times a day for ten days. Fecal, hematologic, renal, and hepatic studies were carried out upon completion of treatment and again twenty, thirty, and sixty days thereafter. There was no clinical or laboratory evidence of intolerance to this drug. All reports of fecal examinations were negative for *E. histolytica* at the tenth day of treatment and at twenty days. Amebae were isolated in 2 patients at the thirty day examination and in a third patient at the sixty day examination.

We now have under consideration an interesting combined metallic agent, *Triamar* ‖ (Diidohydroxyquinoline glycolylarsanilate) a combination of 60 per cent Diodoquin and 40 per cent glycolylarsanilic acid. A combination of two heavy metals, iodine and arsenic, it contains a smaller dose of iodine than found in Diodoquin and of arsenic than found in either Carbarsone or Milibis.[17] The recommended dose of one tablet four times daily contains 1200 mg. of Diodoquin daily combined with 222 mg. of arsenic. This drug represents an attempt to achieve a symbiotic influence of two proved amebacidal metals by use of a smaller fraction of each heavy metal, thus avoiding side effects but achieving enhanced amebacidal influence.

Ten normal male subjects were given 500 mg. of Triamar four times daily for ten days. Other than transient pruritus ani in 2 patients, no side effects were recognized. Renal, hematologic, hepatic, and electrocardiographic studies conducted on the tenth day of treatment and ten days thereafter, revealed no evidence of

§ Supplied by Sterling-Winthrop Research Institute, Rensselaer, N. Y.

‖ Supplied by Research Laboratories of Carroll Dunham Smith Pharmacal Co., New Brunswick, New Jersey.

toxic influence from the drug. Ten patients parasitized with *E. histolytica* were administered 500 mg. of this drug four times daily for ten days, and 4 others were given 1000 mg. four times daily for ten days. Fecal, renal, and hepatic studies performed on the tenth day of treatment and again twenty, thirty, and sixty days thereafter were all reported normal. The drug was tolerated well, although one patient had a mild transient vesicular dermatitis interpreted as iodine dermatitis. Fecal examination at the completion of treatment was reported negative in 13 patients, whereas *E. histolytica* was isolated from the stool of the fourteenth. At the twenty and thirty day re-examinations, stools of the first 13 patients were again normal. At the sixty day examinations, *E. histolytica* was found in the stools of 3 additional patients. None of the 4 patients given 1000 mg. of the drug four times a day for ten days showed evidence of recurrence of *E. histolytica.*

THERAPEUTIC REGIMEN

Tried and proved methods herein outlined should, in our opinion, unquestionably be incorporated in the management of the patient parasitized with *E. histolytica* when individualization permits classification into a type of involvement.

Acute amebic dysentery is manifested as acute diarrheic hypermotility initially, followed in a few days by bloody stools containing mucus and sloughed mucosa. There may be prompt, spontaneous remission, gradual improvement with relapses, or progression to a fulminating stage. Despite authoritative publication to the contrary, leukocytosis and fever may possibly occur from secondary infection, and one is faced with the problem of differential diagnosis even when *E. histolytica* is isolated. The therapy advocated in such cases is:

First ten days:

1. Erythromycin stearate, 200 mg., or Oxytetracycline, 500 mg., every six hours.

2. Concomitant administration of Carbarsone, 0.75 Gm. daily, Glycobiarsol, 1.5 Gm. daily, or Diidohydroxyquinoline, 1.9 Gm. daily.

Second ten days:

Choice of: Fumagillin, 60 mg. daily, or Carbarsone, Glycobiarsol, or Diidohydroxyquinoline. (Preferably, no drug used during first ten days to be repeated.)

Third ten days:

A drug selected from the foregoing nonantibiotic group at the same stipulated schedule, again preferably no drug previously used to be repeated.

In the acute stages supportive measures should be employed, as demanded by the individual case, i.e., parenteral fluids, dietary restriction to minimize residue of either liquids or soft food, replacement of blood if bleeding has been extensive, and antidiarrheal measures, including administration of bismuth, kaolin, sedatives, and opiates, as required. Emetine hydrochloride, 1 gr. subcutaneously, daily for a maximal period of ten days, is given only if the diarrheal manifestations are uncontrollable by antidiarrheal measures.

This stage of the disease has been known to be spontaneously reversible. If correctly diagnosed as an acute phase, complete cure is anticipated in all but the unusual case, since no invasion of deep tissue has occurred. The occasional intractable case deserves repetition of the program outlined, along with administration of Chloroquine diphosphate, 1 Gm. daily for twenty days. A follow-up examination with three fecal surveys at thirty day intervals should be adequate to determine whether the patient is "cured."

Chronic amebic colitis may be characterized by intermittent diarrheal episodes or by mild persistent diarrhea. Involvement of the right side of the colon is associated more often with intermittent diarrhea, whereas ulceration of the left side of the colon characteristically causes persistent diarrhea. Tenesmus is common. This is properly a tissue phase of the disease, with extension of amebic infiltration into the submucosal, but rarely into the

muscular, layers of the intestinal wall to cause extensive mucosal denudation, scarring, and occasionally formation of granulomas of varying size. These granulomas may slough out to form large fibrotic ulcerations or neoplastic-like "amebomas." True penetration is rare. Bleeding may be microscopic only, or it may be massive.

The therapeutic program for these patients incorporates the three ten day schedules outlined for acute amebic dysentery with the requisite addition of Chloroquine diphosphate, 1.0 Gm. daily, during twenty days of the treatment period.

Persistence of *E. histolytica* at the end of thirty days of treatment calls for repetition of the entire schedule, with the addition of Emetine, administered during the second ten days. Bed rest during the period of administration of Emetine, with control electrocardiograms, is mandatory in view of the cytotoxic action of this drug. Recurrence, reported fairly frequently in such cases, but rare in our own experience, requires repetition of the initial thirty day program. Fecal examinations should be made in these patients every thirty days for at least six months after completion of the therapeutic program.

The "asyndromic" or asymptomatic "cyst passer" should be considered a public health problem (a source of parasitic dissemination) and a potential symptomatic case when host-parasite relationship is altered to precipitate symptomatic amebiasis. This patient should be treated adequately, but not necessarily as intensively as the foregoing two. It is our opinion that treatment with three consecutive ten day courses of any of the intestinal amebacides, as outlined for acute amebic dysentery, is curative.

Extraintestinal amebiasis, manifested as hepatitis, hepatic abscess, pleuritis, draining sinuses, peritonitis, and peritoneal abscesses, and the more bizarre extremes of the disease, which fortunately are rare, all require the same intensive management outlined for chronic amebic colitis. Irrigation of abscesses with Emetine and Chloroquine, along with drainage, is often required.

Amebiasis cutis, in the absence of a fistula, is said to occur. Pruritus ani, concomitant with amebiasis, has been ascribed by some to *E. histolytica.* We have not observed confirmatory histopathologic changes and doubt this occurrence as a true amebic cutis. It is further believed that the pruritus ani in these cases is primarily a traumatic condition and does not necessarily reflect cutaneous involvement. In our experience, it subsides when the diarrhea is controlled. A presumptive diagnosis of amebiasis cutis may be justified and treatment similar to that endorsed for "asyndromic" or asymptomatic amebiasis may be employed. Emetine, however, has been enthusiastically endorsed as curative for cutaneous amebic involvement,[18] Therapeutic response, however, cannot be interpreted as more than presumptive that parasitization had existed.

The Defunctionated Colon with Amebiasis.—On 8 occasions we have encountered *E. histolytica* in colons defunctionated by ileostomy or proximal colostomy because of a pathologic condition other than amebiasis. The oral, or parenteral, administration of an antiamebic agent does not permit adequate colonic concentration of the drug for amebacidal influence. We have always had success with combined proximal and distal colonic instillation of Carbarsone and Diodoquin used alternately for ten day periods.

Prophylactic Administration of Amebacides.—Persons contemplating visits to out-of-state areas where water, food supply and food handlers have been incriminated as transmitters of amebiasis frequently request a prophylactic amebacide. Few available amebacides are sufficiently innocuous to permit such use. We are inclined, from our experience with the various agents, to endorse Diodoquin for this purpose for two reasons: (1) Fewest side effects have been encountered with Diodoquin. (2) None of 16 patients given Di-

odoquin for this purpose have experienced any untoward reaction nor has *E. histolytica* been isolated in any of their stools on examination following their return from areas in which the population incidence exceeded 25 per cent.

Surgical Intervention in Amebiasis has been well covered in three surgical treatises emanating from New Orleans.[19-21]

Appendicitis. — Often, amebiasis may simulate or be complicated by acute appendicitis. In the face of such an occurrence and the requirement for appendectomy, an increased risk is encountered in the presence of an unhealthy appendiceal stump leaking. Parenteral use of Emetine, Oxytetracycline, and Erythromycin is indicated. The danger of cytotoxic influence of Emetine is justified by the severity of the situation.

Amebic granulomas may be indistinguishable from a neoplasm. Whereas they often respond dramatically to amebacides, this is not always to be anticipated, nor do they always subside without leaving a residual questionable deformity. Proper preoperative preparation of the intestinal tract with Oxytetracycline in suspected cases should be adequate to produce a healthy anastomotic site. Use of Emetine preoperatively may not be justified, since it may increase the operative risk appreciably. Postoperative amebacidal therapy should be carried out as with chronic ulcerative amebiasis.

Hepatic and subphrenic abscesses not responding to adequate therapy and closed drainage may require operative drainage for complete eradication. *Parasitemia* with bizarre metastases to the brain,[5] genitourinary tract, and other sites requires all possible therapeutic aids supplemented by operation, if indicated.

SUMMARY AND CONCLUSIONS

Therapeutic achievements include the more conscientious efforts to evaluate drugs in terms of dose, sensitivity of amebic strain, tissue distribution, and fecal concentration in order to achieve an accurate dosage schedule. As yet, this goal has not been accomplished, but some index of applicability in relation to individualized needs is suggested.

Incorporation of the wide spectrum antibiotic drugs as intestinal amebacides invokes a new therapeutic concept in which these agents theoretically potentiate a four-fold action: (1) amebic inanition, by disturbance in bacterial flora, (2) control of secondary infection, (3) nullification of invasive bacterial aid to the amebae, and (4) direct amebacidal action. Of the antibacterial antibiotic drugs, Erythromycin and Terramycin are endorsed either as conditioning agents or true amebacides. Of the restricted bacterial spectrum antibiotic agents, Fumagillin is an excellent amebacide. Anisomycin, potent in vitro, will require more extensive clinical evaluation before its efficacy and innocuousness can be established. Two newer chemical agents, Win 12051 and Triamar under preliminary study have been indicated as potent amebacides.

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TRAUMATIC HYPHEMA *

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SHREVEPORT

Hyphema, or blood in the anterior chamber of the eye, may be insignificant and transitory, or it may be serious and persistent. It may be a complication, of disease or surgery or it may be the result of injury. All of these are important, but we shall confine our discussion to hyphema of traumatic origin. The trauma may be direct or indirect, perforating or nonperforating. Bleeding into the anterior chamber comes from injuries of the iris or ciliary body, such as iridodialysis, aniridia, rupture of the sphincter or radial and circular tears. The chief source of anterior chamber hemorrhage is a tear at the root of the iris, or iridodialysis. In the recent state, the blood is bright red and settles to the bottom of the chamber, changing to a new level with each change in the position of the head. After a few days, the blood becomes darker and may clot. New hemorrhages are recognized by the bright red color superimposed on the darker layer. Frequently the hemorrhage completely fills the chamber, obscuring all landmarks and making it impossible to determine the extent of the injury. The majority of these hemorrhages absorb rapidly, but may be complicated by the occurrence of secondary hemorrhage several days later. Such hemorrhages may occur while the patient is resting quietly in bed and without any known provocation. They are seen more often in older people, though the young are not exempt. According to Duke-Elder,[1] these hemorrhages, on rare occasions may continue to recur at periodic intervals for weeks or even months, and tend to be more profuse than the primary bleeding, usually filling the entire chamber. He further states that the cause of these secondary hemorrhages, which create so serious a therapeutic problem, is unknown. When the hemorrhage is massive, particularly the delayed type, an organized clot may form blocking the drainage system of the eye. Secondary glaucoma may then ensue and if not relieved promptly will result in blood staining of the cornea.

Injury to the deeper structures of the eye may accompany or complicate hemorrhage into the anterior chamber, such as traumatic iridocylitis, cataract, vitreous hemorrhage, rupture of sclera, detachment of the choroid or retina.

Reviewing the literature briefly, we find considerable diversity of opinion concerning the management of hyphema, particularly as to the use of mydriatics. Most of us were taught that in any injury of the eye involving the iris or ciliary body atropine should be instilled. The purpose of this was to put the injured muscles at rest during the healing process, making the occurrence of iridocyclitis and synechiae less likely. In recent years, many authorities have warned against the routine use of atropine because of some serious complications.

Würdemann[2] says, "The treatment of hyphema is usually the same as that of the wound or contusion, namely, atropine, asepsis, and rest in bed;—If radial tears are seen, then atropine is contraindicated and esserin should be used to contract the pupil and draw the tears closer together."

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No reference is made to the possibility of complications that might result from the use of atropine.

Dunnington,[3] discussing contusions of the globe with intraocular hemorrhage, said they should be treated with complete rest, cold compresses and frequent instillations of atropine sulphate solution, 1 per cent, to guard against the development of a traumatic iritis.

Payne[4] says the management of contusions of the eye calls for little action and considerable patience on the part of the ophthalmologist. It is suprising how many contusions will heal without complication following simple cleansing, bandaging, and rest. He says further that it is not necessary and is often dangerous to administer atropine solutions following nonperforating injuries.

Hardesty, Green, and Luedde in discussing contusions of the eyeball warned against indiscriminate use of atropine. They reported cases in which glaucoma immediately followed the use of this drug. Thus it would appear to be safer to use atropine only where iritis develops.

Thygeson and Beard,[5] after listing a series of cases and discussing the various causes and significance of hyphema, and the diversified opinions of numerous authorities in regard to treatment, concluded that present methods of management are unsatisfactory. The routine treatment which they adopted was as follows:

1. Hospitalization at absolute bedrest;
2. Five per cent homatropine drops in the injured eye four or five times daily;
3. Rutin (60 mg.) and vitamin C (300 mg.) three times daily; and
4. Barbiturates if the patients were children or apprehensive adults.

Several years ago Rychener,[6] in discussing this subject, made the following statement: "Most of the complications may be avoided by early and effective treatment, consisting only of simple paracentesis whenever the intraocular pressure is increased or when the anterior chamber is completely filled with blood and the instillation of miotics thereafter. Indeed, it may be possible in many cases to avoid surgery entirely if miotics rather than mydriatics are employed before secondary hemorrhage ensues."

So it would seem that the best treatment of anterior chamber hemorrhages following blunt injury consists of rest in bed, sedation, and bandaging of the eyes, preferably binocular. The majority of such hemorrhages may absorb satisfactorily with no other treatment. Ice compresses are soothing to the patient and tend to retard bleeding. Many authorities still stress the use of atropine to minimize aggravation of the iridodialysis which may be present, to reduce the likelihood of posterior synechiae and to combat the associated traumatic iridocyclitis. Those who oppose the use of atropine, or any other mydriatic, point out that, with an undilated pupil, a greater iris surface is available and a more rapid absorption of the hyphema may be expected. Furthermore, the chamber angle is less likely to be obstructed; consequently, secondary glaucoma is less likely to occur. Quoting from Duke-Elder, he says: "On the whole, any mydriatic is usually unnecessary and may be dangerous. In the presence of a hyphema, expectant treatment without the instillation of atropine is probably the safest course so long as the tension is normal or low. If anxiety is felt, however, the instillation of miotics rather than mydriatics at an early stage may forestall the complications of a hyphema and obviate the necessity of surgery. In secondary hemorrhages, and in all cases if the tension becomes raised, eserine should be instilled."

In conclusion, it would seem good to stress the following points:

1. Traumatic hyphema, though often not regarded with great concern, may terminate in a serious condition, even the loss of an eye.
2. The most frequent complications, aside from those directly due to the injury, are secondary glaucoma and blood staining of the cornea.
3. The treatment should consist of phy-

sical rest, sedation, bandaging of eyes. There should be a period of watchful waiting, observing the tension of the eyeball, the absorption of the hemorrhage or the occurrence of new hemorrhage.

4. Should increased tension develop, with the anterior chamber full of blood, paracentesis should be performed and a strong miotic instilled.

5. Atropine is usually unnecessary and may be dangerous.

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DISCUSSION

Dr. James H. Allen (New Orleans), I wish to congratulate Dr. Wilkinson for a very clear statement of the problem and controversy concerning the treatment of traumatic hyphema. As he has observed, the majority of cases of hyphema fortunately are simple and probably cure themselves. In these cases of short duration watchful waiting is all that is required.

In more severe injuries continued bleeding may be the result of severe trauma to the iris, or the hyphema may be maintained, or continued by repeated hemorrhage from the ciliary body. In cases of repeated hemorrhages the injury undoubtedly produced extensive but subtotal damage to the uveal vessels. Thus, minor trauma such as rubbing the eye, which the patient invariably denies, results in further hemorrhage from the partially necrotic vessels. Thus, in addition to general rest and dressing of the injured eye, it is important to shield the eye so the patient cannot even unconsciously rub the eye. For this purpose a rigid metal shield is preferable.

After having observed a number of severe cases of hyphema treated by different methods I have been unable to convince myself that either miotics or mydriatics have any effect upon the bleeding. Therefore, while I agree with Dr. Wilkinson that atropine is rarely necessary, I believe that mydriatics are essential for the control of the traumatic uveitis.

Unfortunately paracentesis and irrigation of the anterior chamber is a poor means of controlling the glaucoma, which may develop during the period of bleeding, and in addition, frequently reactivates the bleeding. Therefore, medical means of treatment are preferable. In a number of instances diamox has been useful in maintaining normal intraocular pressure in these cases even in conjunction with mydriatics. In such cases the blood usually remains in the anterior chamber for a longer period of time but may disappear completely overnight when the diamox is discontinued.

Another measure we have found to be valuable both in control of the uveitis and in increasing the adsorption of the blood is the use of small doses of intravenous foreign protein therapy. For this purpose we use doses of 10, 15 or 20 million typhoid H antigen daily. Larger doses producing a shock type reaction may be used but are more likely to aggravate the bleeding.

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RUPTURE OF THE URINARY BLADDER IN THE NEONATAL PERIOD WITH REPORT OF A CASE

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Rupture of the urinary bladder at or shortly following delivery is extremely rare, as shown by the fact that a review of the American and British literature reveals only two cases mentioned, but none fully reported. Factors which might predispose to rupture of the urinary bladder would be those which would cause unusual distention, weakness in the bladder wall, or combinations of the two with or without superimposed trauma. Trauma alone (to a normal bladder) conceivably could produce rupture. Specifically, neoplasm, calculi or abscess in the bladder outlet or urethra, congenital stenosis or inflammatory stricture might be mentioned. In boys extreme degrees of phimosis and congenital kinking of the urethra can occur and could predispose to bladder distention and rupture. Ulceration of the bladder wall (as in tuberculosis), fatty degeneration, diverticular or trophic changes as seen in central nervous system disease (especially paraplegia) must also be considered as possible factors for possible rupture of the bladder wall.

According to Smith,[1] the bladder con-

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tains fluid by the fourth month of gestation, and it is conceivable that unusual and severe trauma to the mother during pregnancy could damage the bladder of the infant. Trauma to the infant during delivery might also cause injury to the bladder, which could underlie a subsequent rupture.

That the bladder can tolerate considerable tension as well as trauma (with the exception of penetrating wounds) is well known. Rupture from any of the above causes, therefore, is uncommon. Campbell [2] states that it is doubtful that the empty normal bladder ever ruptures spontaneously, and that unnoticed trauma to a distended bladder is probably the most common cause of the so-called spontaneous rupture. According to him, intraperitoneal rupture usually involves the dome and accounts for one-third of bladder ruptures. It is suggested, especially in consideration of this case, that a ruptured bladder at least be borne in mind in any case of an acute abdomen in a newborn infant. If suspected, a cystogram would be diagnostically valuable, since rupture can be readily demonstrated by this technique.

CASE REPORT

The following is a case report:

S. B., a five day old white female premature infant, was admitted to the Charity Hospital at New Orleans on February 11, 1953, with a history of vomiting, abdominal swelling, and a generalized rash for one day. According to the history, the infant had an uneventful spontaneous delivery in a country town in the vicinity of New Orleans. No marked abnormalities were noted during the first four days of life. No history of trauma could be elicited in regard to either the baby or the mother. Apparently, there were no disturbances of bowel or bladder function as noted by the parents. On the fifth day, according to the parents, the abdomen became distended, the baby began vomiting and a rash appeared.

Physical examination on this day revealed a newborn infant weighing slightly under five pounds with abdominal distention, but not clinically dehydrated. No abdominal masses were palpated. Peristalsis was present. X-rays of the abdomen revealed dilated small bowel with some fluid levels when taken in the upright position. No distention was noted, nor could any air be seen in the colon. A diagnosis of mechanical intestinal obstruction, due probably to small bowel stenosis, was entertained. Because of the diagnosis of the mechanical intestinal obstruction, surgery was advised.

Under general anesthesia an abdominal exploration was done several hours later. The abdomen was entered through a right rectus incision. Upon opening the peritoneum, clear serous fluid with some fibrinous strings was found to be present. Distended small bowel was found to be present down to the region of the terminal ileum, and the most distant portions of the ileum and the large bowel were collapsed. There were fibrinous adhesions in the region of the terminal ileum, and it was at this point that a mechanical obstruction existed. The adhesions were easily separated, and upon close inspection of the intestinal tract no area of perforation or abnormality could be noted. The urinary bladder was distended, and it was noted at this point there were several strings of fibrinous exudate seemingly attached to the dome of the distended bladder. Upon gentle separation, a 2 mm. perforation was found in the dome of the bladder, through which urine emptied rapidly upon removal of the exudate. Because of the stage under which the sealing off process had progressed, it was felt that the perforation was at least forty-eight hours old. At the operating table, a sterile catheter was placed into the urethra and up into the urinary bladder. This catheter was seen to emerge into the free peritoneum. The perforation in the bladder was then sutured with several interrupted sutures of fine chromic catgut.

The first four post-operative days were uneventful. The infant was placed in the premature nursery in an Isolette and the usual premature care given. On the fifth post-operative day the abdomen became distended, and on the following day an evisceration became apparent. It was necessary to take the infant back to the operating room to do a secondary closure with through and through interrupted sutures of black silk. Following this, recovery was uneventful.

After two months the genitourinary department assisted in giving the infant a urologic work-up. The work-up, including an intravenous pyelogram and cystogram, was entirely normal. After three months the baby was apparently well and was discharged from the hospital. The weight at this time was 10 pounds 8 ounces. The infant was seen in the out-patient clinic several times. A repeat cystogram was again normal. There have been no further urinary tract complications.

As part of the follow-up of this case, the obstetrician who originally delivered this infant was questioned. Especial note was taken of the possibility of the infant having had any trauma or having been catheterized. Both of these possibilities were ruled out.

In discussion of this case, it would seem that a rupture of the urinary bladder in this premature occurred shortly before, at, or shortly after delivery. It is probable that the extravasated urine had caused a low grade peritonitis and that the resultant fibrinous exudate had managed to seal off the perforation. The infant was probably managing to survive this process very well until adhesions in the region of the terminal ileum and a fibrinous band caused a mechanical intestinal obstruction. The peristaltic waves in the premature infant were not sufficient to cause the intestinal contents to pass the point of the soft fibrinous band, with the result that surgical intervention was necessary.

CONCLUSION

An extremely rare condition, rupture of the urinary bladder in the neonatal period, was discovered. To our knowledge, this is the first case fully presented in the British and American literature. A case presentation is given with the treatment and successful outcome.

REFERENCES

1. Smith, Clement A.: The Physiology of the Newborn Infant, 2nd edition, 1951, Charles C Thomas, Publisher, Springfield, Illinois.

2. Campbell, Meredith F.: Clinical Pediatric Urology, 1951, W. B. Saunders, Philadelphia.

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COMMITTEE REPORT
CHARITY HOSPITAL COMMITTEE

GORDON W. PEEK, M. D.
Chairman
THOMAS CAMPANELLA, M. D.
FRANK W. PICKELL, M. D.
SPEARS RANDALL, JR., M. D.
ALBERT L. McQUOWN, M. D.

The following report is submitted by the Charity Division of the Fact Finding Committee of the East Baton Rouge Parish Medical Society. The Committee consists of five members appointed by the President of the East Baton Rouge Parish Medical Society in September 1953, for the purpose of studying the need for charity facilities in East Baton Rouge Parish. This Committee held its first meeting on September 22, 1953, to formulate plans for proceeding with the study. The approach decided upon was to study the economic situation in East Baton Rouge Parish and to secure records of those patients from this Parish who attended New Orleans Charity Hospital for the trimester September-December 1953. We had excellent cooperation from the East Baton Rouge Parish Chamber of Commerce and the personnel at the New Orleans Charity Hospital, who gave us a duplicate copy of the admission sheet of all patients admitted and all new clinic patients to Charity Hospital for these four months. These duplicate sheets were delivered once weekly and were compiled by the Secretary into columns giving home of patient, address, age, color, number of dependents and the stated employer and income.

A list of requirements for eligibility to Charity Hospital was then acquired (Table 1).

TABLE 1
ELIGIBILITY REQUIREMENTS FOR ADMISSION TO LOUISIANA STATE CHARITY HOSPITALS

Single:	$140.00 monthly
Couple:	$160.00 monthly
Dependents:	
1	$175.00 monthly
2	190.00 monthly
3	205.00 monthly
4	220.00 monthly
5	235.00 monthly
6	250.00 monthly
7	265.00 monthly
8	280.00 monthly
9	295.00 monthly
10	310.00 monthly

$15.00 extra is allowed for each dependent so that a couple with ten dependents may draw $310.00 monthly and meet eligibility requirements. This eligibility requirement is less for other charity hospitals throughout the state but is similar for the Shreveport Charity Hospital.

While the above Charity Hospital survey was being conducted, the Committee began to look into the economy of Baton Rouge and East Baton Rouge Parish. A pay scale was obtained from the major industrial plants and the building trades crafts. A copy of the Baton Rouge Chamber of Commerce report for Decem-

TABLE 2

ETHYL CORPORATION WAGE RATES (HOURLY) PAID EMPLOYEES
SODIUM & TEL AREAS—BASE RATES

Classification	Effective: 7-1-53		
	1st Class	2nd Class	3rd Class
OPERATIONS			
Working Leader	2.75	—	—
Operator	2.57	2.43	—
Junior Operator	2.22	—	—
Operator Helper	2.08	1.82	—
MAINTENANCE			
Blacksmith	2.59	2.42	2.25
Carpenter	2.59	2.42	2.25
Electrician	2.70	2.51	2.25
Electrical Inspector	2.77	—	—
Cable Splicer	2.81*	—	—
Instrument Inspector	2.67	—	—
Instrument Mechanic	2.59	2.42	2.25
Insulator, Cement Finished, Plasterer	2.59	2.42	2.25
Iron Worker	2.59	2.42	2.25
Machinist	2.59	2.42	2.25
Machinist, Outside	2.59	2.42	2.25
Mechanical Inspector	2.59	2.42	2.25
Painter	2.46	2.35	2.25
Pipefitter	2.59	2.42	2.25
Pipefitter Layout	2.66	2.59	—
Pipefitter Sketcher	2.66	2.59	—
Pump House & Power Working Leader	2.75	—	—
Pump House & Power Operator	2.57	2.43	—
Reclamation Mechanic	2.59	2.42	2.25
Rigger, Crane Operator	2.59	2.42	2.25
Rigger Inspector	2.67	—	—
Sheet Metal Worker	2.59	2.42	2.25
Sheet Metal Layout	2.66	—	—
Sign Painter	2.59	2.43	—
Sodium Service Mechanic	2.59	2.42	2.25
Steeple Jack Painter	2.59	—	—
Welder	2.70	2.51	2.25
Heavy Duty Mechanic	2.59	2.42	2.25
Helper	2.10	1.92	1.82
TRAIN CREW			
Trainman Leader	2.60	—	—
Trainman	2.44	2.40	2.35
CONTROL LABORATORY			
Special Laboratory Assistant	2.45	—	—
Senior Laboratory Assistant	2.38	—	—
Laboratory Assistant	2.24	2.07	—
Laboratory Helper	1.98	1.89	1.82
SERVICE			
Fireman (Inspector) Leader	2.29	—	—
Fireman (Inspector)	2.17	1.89	1.82
Laundry Leader	2.29	—	—
Laundry Operator	2.17	1.89	1.82
Patrol Leader	2.32	—	—
Patrolman	2.20	—	—
Escort Watchman	1.98	1.89	1.82
STORES			
Stores Leader	2.41	—	—
Warehouseman	2.24	2.06	—
Stores Helper	1.98	1.89	1.82

TABLE 2 (Continued)
ETHYL CORPORATION WAGE RATES (HOURLY) PAID EMPLOYEES
SODIUM & TEL AREAS—BASE RATES

Classification	Effective: 7-1-53 1st Class	2nd Class	3rd Class
LABOR			
Sodium			
Man Who Works Between Cells	1.75	—	—
Man Who Works Under Cells	1.75	—	—
Office Porter	1.75	—	—
CP Attendant	1.68	—	—
Laboratory Man	1.68	—	—
Man Who Sweeps Under Cells	1.68	—	—
Bath Grinding	1.68*	—	—
Burner Room	1.68*	—	—
Calcium Oven Man	1.68*	—	—
Chlorine Tank Car Cleaner	1.68*	—	—
Cleaning Acid Towers	1.68*	—	—
Cleaning Salt Bins	1.68*	—	—
Cleaning Water Towers	1.68*	—	—
Slacking Lime	1.68*	—	—
Washing Sodium Barrels	1.68*	—	—
TEL			
Freight Handler	1.75	—	—
Railroad Trackman	1.75	—	—
TEL Building Attendant	1.75	—	—
Burning Ground Job	1.68	—	—
Central Shops Clean-Up Man	1.68	—	—
Laboratory Attendant	1.68	—	—
Mail Carrier (Intraplant)	1.68	—	—
Safety Equipment Man	1.68	—	—
Sample Man (Contaminated Lead)	1.68	—	—
Special Laborer	1.68	—	—
Storehouse Man	1.68	—	—
SODIUM & TEL			
Truck Driver (Outside)	1.97	—	—
Truck Driver Leader	1.94	—	—
Working Leader	1.87	—	—
Truck Driver	1.87	—	—
Laborer	1.61	1.53	—
CAFETERIA — BASE RATES			
Cook Leader	2.13	—	—
Cook	1.88†	1.76†	—
Cook Assistant	1.58†	—	—
Cook on Mobile Unit	To be detailed an additional 6c per hr., 4 hrs./shift		
Baker	1.94	—	—
Storeroom Clerk	1.82	—	—
Mobile Unit Man	1.55**	—	—
Kitchen Helper	1.48	—	—
Cafeteria Attendant	1.32	—	—

* Detailing only.
** To be used for detailing of Kitchen Helpers only.
† To be used for detailing to Cook on Mobile Unit.

ber 1953 was also secured. This Committee was astonished to find the magnitude of the industrial pay, which was led by Standard Oil Company and followed closely by Ethyl Corporation. Table 2 is the pay scale at Standard Oil Company whose minimum rate for colored labor on the yard is $1.74½ per hour or $13.96 per eight hour day, with increased pay for night work, overtime, and holidays;

while the maximum colored rate is $2.67 per hour or $21.36 per eight hour day. The white general labor scale is slightly higher at $2.29 per hour as the lower range and $2.76 as the higher rate. The Ethyl Corporation also has a pay scale of which any company can be proud. The scale runs from $2.75 per hour or $22.00 per day for working leader 1st class to laborer 2nd class at $1.53 per hour or $12.24 per day. There is only one lower scale which is cafeteria attendant at $1.32 per hour.

The scale for the building trades craft stands head and shoulders above that of the industrial plants. The high is brick masons at $3.17½ per hour or a whopping $25.40 a day. Iron workers at $2.85 per hour, plumbers and pipefitters $2.90 per hour, filling station attendant at $1.97½ to $1.47½ for a light truck driver and a carpenter draws $2.33½.

Figuring the above upon a monthly basis of 23 working days, Standard Oil pays a high of $507.84 for white labor and a low of $421.36 while the colored laborer draws a high of $490.28 and a low of $310.08. Ethyl Corporation pays a high of $506.00 for a leader and a low of $281.52 for a laborer 2nd class. The build-

TABLE 3
NEW WAGE RATES FOR BUILDING TRADES CRAFTS
FOR CONTRACTS EXTENDING THROUGH DECEMBER 31, 1955

Craft	New Rate Now	New Rate July 1, 1954	New Rate Sept. 1, 1954	New Rate Oct. 1 1954
Brickmasons	3.10		3.175	
Ironworkers:				
Structural	2.775	2.85		
Reinforcing	2.65	2.725		
Laborer, Common	1.30	1.325		
Tender & Mortar Mixer	1.45	1.475		
Air Tool Operator	1.40	1.475		
Pipe Layer	1.40	1.475		
Tool Room Attendant	1.45	1.475		
Millwrights, journeyman	2.65	2.725		
Heavy Duty Operators	2.775	2.85		
Medium Duty Operators	2.50	2.575		
Light Duty Operators	2.36	2.435		
Plasterers	2.75	Same		
Plumbers & Fitters	2.90	Same		
Truck Drivers, up to but not including 1½ tons	1.475			1.515
1½ tons up to but not including 3 tons	1.725			1.765
3 tons up to but not including 5 tons	1.825			1.865
5 tons and over	2.025			2.065
Winch trucks with "A" frame	2.30			2.34
General Warehouseman, material checker, Stock Room Tool Issue & Receiving Clerk	1.90			1.975
Filling Station Attendant	1.90			1.975
Tire Repairman	1.75			1.825

Cement Finishers have been offered 5½¢ increase now and 6½¢ additional July 1. They are considering it.

Lathers are requesting a total of 12½¢. Contractors offering 10¢ total.

Carpenters are requesting a total of 16½¢ per hour. Contractors have offered a total of 14½¢ and feel that this is more than fair judging by other crafts. Carpenters now 2.33½.

ing trades come in for a high of $584.20 for brick masons to a low of $278.76 for light truck drivers. The man who repairs the tire at the filling station rates $1.82½ or $335.80 monthly.

The statement was recently made in a Baton Rouge paper and verified by the Chamber of Commerce that the industrial worker in Baton Rouge is the third highest paid in the United States, being topped only by Flint, Michigan and Casper, Wyoming.[1] A recent report by Sales Management Magazine[2] shows that more than half (50.2 per cent) of the families of East Baton Rouge Parish have an income of over $4,000.00 per year, with an average family income of $6,592.00 per year, or $549.00 per month, after Federal and state taxes are paid.

The breakdown is as follows:

$0 to 2,499.00	31.0%
2500.00 to 3999.00	18.8%
4000.00 to 6999.00	36.7%
7000.00 and over	13.5%

By comparison, the family income in Shreveport is $5,505.00; New Orleans $5,145.00; and Lafayette $4,128.00, while the national average is $5,246.00.

The estimated population of East Baton Rouge Parish in 1954 is 190,700 with 165,100 living in the city of Baton Rouge, making up 47,450 families. The labor force of this parish is made up of 74,800 workers with only 2,900 unemployed at the time of the last survey in 1952. The components of population are approximately 37 per cent colored and 63 per cent white.

To quote the Baton Rouge Chamber of Commerce, "The Baton Rouge family income and buying power rank 19 per cent above the national average" of $5,246.00 per year.[3] There are 65,728 (1954) automobiles exclusive of trucks and busses in East Baton Rouge Parish, or one per 2.8 persons. The average family size is four people.

A look at the state charity and welfare set-up reveals evidence of abuse of the free agencies of the state so that it is called the "Share the Wealth State" by *Nation's Business*, U. S. Chamber of Commerce magazine. It reports that Louisiana has 700 old aged per 1000 on the public assistance while Indiana has 129 per 1000 and the national average is 224 per 1000. Louisiana ranks second in the United States in expenditure for free school lunches with $11,178,558.00 per year, topped only by New York State with $19,359,096.00. Statistics show that 8 per cent of the (March 1954) people in the state are now on the welfare program, costing approximately $110,000,000.00 yearly.[4] A study begun recently and not yet complete (5-3-54) by the Public Affairs Research Council (P.A.R.) revealed that of 92 cases reviewed in Orleans Parish, 33 cases or 35.7 per cent were ineligible. In Tensas Parish, 26 of 79 cases or 32.9 per cent were fraudulent. The Charity Hospital situation reveals even greater abuse. There are 8 general charity hospitals located in strategic points throughout the state excluding several tuberculosis and mental institutions. There are 12 private hospitals with contract charity beds paid for by the state, not to mention the Veterans Hospitals and the Marine Hospital. The total so-called free beds in Louisiana made up of the above list[5] and the private beds are shown in Table 4:

TABLE 4
HOSPITAL BEDS IN LOUISIANA

Free Beds	
U. S. Army	700
U. S. Public Health	886
Veterans Hospitals	1,445
State	
Mental	8,216
Tuberculosis	394
General Charity	4,591
Total free	16,232
The Private Beds (including tuberculosis and mental):	
I. C. R. R.	60
Psychiatric	247
Tuberculosis	89
Shrine	60
General	5,589
Total pay	6,045

These statistics (Table 4) show that there are now about three free beds to one

private bed in the state. These charity hospitals admitted as bed patients approximately 129,570 patients in 1953 with average stay varying from 3.9 days per patient at Lallie Kemp Charity Hospital to 13 days at Jonesboro Charity and at a cost per day varying from $7.86 per patient at Lafayette Charity Hospital to $8.51 per day per patient at Jonesboro.

In addition to those admitted, there were approximately 921,129 Clinic visits.[6] (Table 5) Mind you, the population of Louisiana in the last census, 1950, was only 2,683,516. Of this group there are 336,250 veterans who are eligible generally for Veterans Administration Hospitals. The following list (Table 6) is submitted in evidence of the abuse of the charity system as the following patients were admitted to a charity hospital in one month (Sept. 1953) from one parish after stating at the admission visit they held the following jobs and drew the following salaries.

There is also an intricate system of charity ambulance service throughout the state with a fleet at Baton Rouge and Lake Charles. They traveled 219,056 miles in 1953, transporting patients to New Orleans Charity Hospital.

The Committee survey of the East Baton Rouge Parish situation revealed that there were 1248 patients admitted to New Orleans Charity Hospital or assigned to the Clinic from September to December 1953, or approximately 3,744 per year, or less than 2 per cent of population. Of this group there were 1071 (85 per cent) colored and 177 (15 per cent) white. Of the total, 437 (35 per cent) were admitted for delivery. Of the total group 13 per cent admitted ineligibility due to income when questioned at the Admitting Unit. Those admitting ineligibility along with

TABLE 5
DEPARTMENT OF INSTITUTIONS
STATISTICS ON GENERAL HOSPITALS
QUARTER ENDING SEPTEMBER 30, 1953

Hospitals	Operating Costs	Admissions	Patient Days	Clinic Visits *	Units of Service	Average Days Stay	Cost Per Day	Cost Per Patient
Lallie Kemp	$ 107,260.05	1,410	5,595	11,952	8,583	3.9	$12.50	$ 49.58
Charity Hospital	429,040.20	5,640		47,808				
Huey P. Long	190,445.92	2,249	14,918	18,187	19,465	6.6	9.78	64.90
Charity Hospital	761,783.68	8,996		72,748				
Lafayette Charity	234,907.63	3,676	26,869	11,988	29,866	7.3	7.86	57.49
Hosp. & T.B. Unit	1,099,630.52	14,704		47,952				
Wash-St. Tammany	77,577.23	1,065	4,757	6,255	6,321	4.5	12.27	54.82
Charity Hospital	310,308.92	4,260		25,020				
Jonesboro Charity	10,628.09	10	130	8	132	13.0	80.51	1,046.71
Hospital	42,512.36	40		32				
E. A. Conway	190,415.09	3,000	16,697	9,565	19,088	5.5	9.97	55.52
Memorial Hospital	761,660.36	12,000		38,260				
Quarterly:	$ 811,234.01	11,410	68,966	57,955*	83,455	6.0	$ 9.72	$ 58.75
Annual:	3,244,916.04	45,640		231,820				

Admissions 1951-2

New Orleans Charity Hospital	62,705
Clinic	613,138
Shreveport Charity Hospital	20,733
Clinic	76,171

Admissions 1953

Total Out Patients	921,129
Total In Patients	129,570
Total Charity Hospital	1,050,699

About 6% of population in charity hospital in 1951-1952.

* Out-patient visit evaluated at one-fourth In-patient day.

those already certified by the Welfare were dropped from the list to be investigated, leaving approximately 884 for the four months. Due to limited funds of this Committee only 126 of these were selected for investigation. A trained investigator was then hired and paid on basis of an agreed amount per family to look into the family financial set-up. He was furnished a copy made from the Charity Hospital admission sheet listing name, address, age, color, stated number of dependents, place of employment and stated income. He then visited the home and reported upon

TABLE 6
CHARITY HOSPITAL SURVEY

1. Inpatient and outpatient treatment:

9- 1 thru 10- 2-53: Inpatients	391	(346 colored,	45 white)
9-15 thru 9-29-53: Outpatients ..	52	(44 colored,	8 white)
	443	390	53

Average cost per day: $10.80
Average days 12

Outpatients, 1946 (last year survey made) 21,000.

2. Ineligible by own admission of income (admit sheet) 51 persons or approximately 12%.

3. Incomes of some ineligibles:

Occupation	Monthly Income	Dependents
1. Lab. Stone and Webster	$200	1
2. Service station	184	0
3. Truck driver	240	4
4. Insulator	260	8
5. City-Parish	160	0
6. Plasterer	200	2
7. Floor sander	200	4
8. City-Parish	180	1
9. Laborer-Industrial contractor—$180; Wife—Domestic @ $40	220	1
10. Waiter—Picadilly	180	1
11. Wolf's Bakery—Truck driver	226	3
12. Saleslady—Department store*	180	1
13. Insurance Salesman	200	2
14. Truck driver	160	0
15. Mechanic—Sears Roebuck*	180	1—(Has hospital & surgical insurance)
16. Owner cafe*	240	1
17. Carpenter @ 324, Wife @ 80	404	1
18. Standard Oil	220	3
19. Brakeman, I. & A. R.R.	200	1
20. Furniture salesman	194	0
21. Solvay Construction Co.	220	2—(25 colored 11 white)
22. Construction company*	168	1
23. Ethyl Corporation	200	2
24. Laborer @ 140, Wife—Cook @ 140	280	2
25. Kaiser Aluminum*	284	1
Clinic		
1. Construction work	200	1
2. B. R. Engineering Depot	192	3
3. Parking lot	180	1
4. Electrician	363	6
5. School teacher	288	2
6. ? Occupation unlisted	180	1

* (Mark indicates new born infant, in addition to mother).

TABLE 7
DEPARTMENT OF INSTITUTIONS
FREE AMBULANCE SERVICE—STATE OFFICE
QUARTER ENDING SEPTEMBER 30, 1953

Units	Operating Costs	Miles Traveled	Number of Trips	Average M.P.T.	Cost per Trip	Number of Patients
Lake Charles	$2,454.40	21,565	78	276.5	$31.47	103
Baton Rouge	4,096.68	33,199	167	198.8	24.53	303
Totals	$6,551.08	54,764	245	223.5	$26.74	406

the house, furniture, automobile and number of dependents. The investigator then contacted the employer to certify stated income. When the study was completed and all figures compiled, it was noted that 13 per cent admitted ineligibility before investigation and another 31.5 per cent of those investigated were found to be ineligible. It was also noted that 35 per cent of those admitted were for delivery. A check with the local obstetricians revealed that a patient may receive prenatal care, delivery, post-natal care and hospitalization for approximately $200.00 which could be paid in installments over a period of nine months to a year. There

TABLE 8
DEPARTMENT OF INSTITUTIONS
STATISTICS ON CONTRACT BED HOSPITALS
QUARTER ENDING SEPTEMBER 30, 1953

	Costs Operating	Admissions	Patient Days	Average Days Stay	Cost Per Day	Cost Per In-patient
Baton Rouge General Hospital	$ 317.90	6	21	3.5	$15.14	$52.98
Baton Rouge, Louisiana	1,271.60	24				
Beauregard Memorial Baptist	549.70	13				
Hospital, DeRidder, La.	2,198.80	52	51	3.9	10.78	42.28
Franklin Foundation Hospital	976.00	13	66	5.1	14.79	75.07
Franklin, Louisiana	3,904.00	52				
Franklin Medical Center	58.00	1	3	3.0	19.33	58.00
Franklin, Louisiana	232.00	4				
LaSalette Memorial Hospital	762.00	8	52	6.5	14.65	95.25
Loreauville, Louisiana	3,048.00	32				
Natchitoches Hospital	407.24	10	29	2.9	14.04	40.72
Natchitoches, Louisiana	1,628.96	40				
Ruston Hospital	105.05	3	8	2.7	13.13	35.02
Ruston, Louisiana	420.20	12				
St. Charles Legion Memorial	613.68	14	78	5.6	7.87	43.83
Hospital, Newellton, La.	2,454.72	56				
St. Patrick Hospital	2,782.45	40	207	4.8	13.44	64.71
Lake Charles, La.	11,129.80	172				
St. Elizabeth Hospital	739.73	10	36	3.6	20.55	73.97
Paincourtville, La.	2,958.92	40				
Dr. Steven's Clinic-Hospital	48.00	2	3	1.5	16.00	24.00
Lake Charles, La.	192.00	8				
Our Lady of the Lake Sanitarium	829.97	10	63	6.3	13.17	82.99
Baton Rouge, La.	3,319.88	40				
TOTALS Quarterly:	$ 8,189.72	133	617	5.0	$13.27	$66.58
Annual:	32,758.88	532				

TABLE 9
DEPARTMENT OF INSTITUTIONS
DENTAL PROGRAM
QUARTER ENDING SEPT. 30, 1953

	Operating Costs
Personal Services	$ 2,685.00
Fees for Professional Services	6,455.00
Contractual Services	100.59
Traveling Expense	947.00
Materials & Supplies	918.02
TOTAL Quarter:	$11,105.61
	x 4
Annual:	$44,422.44

are also many insurance companies in this area who carry health and accident benefits at a reasonable rate within the reach of most of these individuals.

A survey in 1950 of the hospital facilities in East Baton Rouge Parish revealed a slight deficit of beds, our average being 3.76 beds per 1000 population whereas 4.1 beds per 1000 is desirable, U. S. Public Health estimate. This does not include charity bed allotment. This deficit has probably been increased some since the population has increased 25,000 since 1950. However, at the present time there are 525 beds in Baton Rouge and a drive is now on to build an annex to the Baton Rouge General Hospital allowing approximately 100 beds (new) in the near future. The 1950 survey also showed that the available beds were never 100 per cent filled. There are also 125 beds at New Orleans Charity Hospital allotted to East Baton Rouge Parish.

A recent report by the Administrator of the Baton Rouge General Hospital, submitted January 1954, revealed that approximately 7 per cent of traumatic cases treated in the emergency room were considered charity and turned over to the state for payment. However, upon investigating this situation, it was found that many of these cases were turned over within a few days after treatment without having been billed or contacted for payment. The administrator also revealed in his report that approximately 60 per cent of all admissions in Baton Rouge last year had some type of hospitalization and surgical insurance.

SUMMARY

Criterion of indigency at Charity Hospital of Louisiana appears to be sound as a family with ten dependents may draw $310.00 monthly and meet requirements.

Louisiana has been called the Welfare State ("Share the Wealth State") of the Union with the highest welfare roll and old age pension roll in the nation.

Louisiana has the highest number of charity beds per capita of any state in the nation with eight charity hospitals strategically located and twelve private hospitals with contract charity beds. There are approximately three free beds to each pay bed in Louisiana.

There is a free charity ambulance servive covering Louisiana with a fleet of ambulances stationed in both Baton Rouge and Lake Charles, La., the only major cities without Charity Hospitals.

There is evidence of gross abuse of the free facilities of the state by people not meeting eligibility requirements. The survery showed that in one hospital 13 per cent of those admitted were found ineligible by their own statement at time of admission and 31.5 per cent of those investigated by this committee were found ineligible. It was also noted that 35 per cent of those admitted from this Parish were for delivery which is a relatively inexpensive service.

Baton Rouge was found to have the third highest income per family in the nation with an average of over $6,500.00 per family unit after Federal and State taxes were paid.

There are approximately two automobiles per family in Baton Rouge.

The number of hospital beds in Baton Rouge and surrounding area is slightly below the desired national average but with a current program for expansion under way, there should be adequate beds in the near future.

Charity hospital beds allotted to this Parish are not included in the above survey.

The survey also reveals that less than 2 per cent of the population of East Baton Rouge Parish is registered for care in the year studied.

CONCLUSIONS

A change in the system of admissions to our charity hospitals to eliminate those ineligible should provide adequate charity facilities.

The per capita income of Baton Rouge and East Baton Rouge Parish is such that health and accident insurance is within the reach of all citizens, and nearby facilities are adequate for the truly indigent.

The state is at present over-burdened with welfare and charity systems. There is no need to build a Charity Hospital in Baton Rouge.

REFERENCES

1. Baton Rouge Chamber of Commerce Publication dated Dec. 1953, Page 5.

2. Sales Management Survey Magazine 1953.

3. Baton Rouge Chamber of Commerce Publication dated Dec. 1953, Page 5.

4. Public Affairs Research Council, March 1954.

5. Hospital Issue Journal of the American Medical Association, 1953.

6. Governor's report at meeting, October 1953.

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Manuscripts should be addressed to the Editor, 1430 Tulane Ave., New Orleans, La.

The Journal *does not hold itself responsible for statements made by any contributor.*

THE POLIO SITUATION AND VACCINATION IN LOUISIANA

This is the time for physicians in Louisiana to undertake the vaccination against polio. The experience in 1954 in the massive field trials of polio vaccine of the Salk type was favorable, and it was shown to give approximately 75 per cent protection. During the late spring and early summer of 1955, interest in use of the vaccine declined. This was the natural consequence of general suspicion aroused by the reporting of cases of polio immediately following the use of the vaccine. This was traced to certain batches of a particular vaccine, following which the use of all vaccines was temporarily suspended. In succeeding weeks the manufacture and testing of all vaccines was reviewed. Retesting was accomplished, and revised standards of safety were established. Administration of the vaccine, manufactured in accordance with these revised standards of safety, has continued, and no suspicion of the induction of polio has been raised. Up to the present, approximately ten million children in five countries have been vaccinated against poliomyelitis with no ill effects apart from the comparatively few cases mentioned above. The experience in these five countries has been favorable. Using the vaccine manufactured under the revised standards of safety, typical experience in the United States may be briefly stated as follows: In New York State, out of 450,000 children from 6 to 10 years of age who were vaccinated, 153 contracted polio. Of these 18 suffered from the paralytic form of the disease. These figures may be compared with a "control" group of 280,000 children of the same age group among whom there were 178 cases, 59 being paralytic. The rates of incidence of the paralytic form obtained by this study were 4 per 100,000 for vaccinated groups, and 21 per 100,000 for unvaccinated. In Minnesota, in a similar report, the rate for the paralytic form of polio was 2.7 per 100,000 for vaccinated children against 30.1 for unvaccinated.

The experience in our own state is contained in an article in this issue by Dr. J. D. Martin, Epidemiologist of the State Board of Health. It is stated there that between April 18 and December 15, 1955, there were 164,910 children in the first and second grades at school in Louisiana. Of these, 81,695 received two injections of the polio vaccine. Eighty-three thousand two hundred and fifteen elected not to be vaccinated. A study of occurrence of poliomyelitis in the two groups shows

that more than seven times as much paralytic polio and more than five times as much of all the forms of polio occurred in the nonvaccinated group as in the vaccinated. The obvious deduction is that polio vaccination is effective in lowering the occurrence of paralytic poliomyelitis and in decreasing the occurrence of all forms of polio.

Dr. Salk who developed the vaccine advises three injections, the third being as a booster seven months after the second. About sixty days is required to develop optimum protection.

The polio season in Louisiana begins in April. If injections were given during the current month and again in sixty days, optimum protection would be afforded by the middle of the spring when the season starts.

The State Poliomyelitis Advisory Committee, composed of representatives of the Louisiana State Medical Society and the State Department of Health, met with the State Health Officer on January 4, 1956, and reviewed the facts of the situation as given above. This Committee suggests that physicians immunize all pregnant women and all persons 20 years of age and under as quickly as they can.

The vaccine is readily available and may be obtained as usual through regular commercial channels or from Parish health units in accordance with existing regulations. The distribution of the vaccine in this state, in accordance with the wishes of the State Health Officer, Dr. S. J. Phillips, in keeping with the express preferences of the Louisiana State Medical Society, has depended chiefly upon administrations by the private physician. Administration by Parish Health units has been under conditions similar to that under which other inoculations have been routinely administered.

The distribution, administration, and the results in Louisiana of polio vaccination have been most fortunate. It is in the interests of the profession and of the public that the private physician continue to keep it this way.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

INFORMATION OF THE JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

Medical Records

Medical records are an important tool in the practice of medicine. They serve as a basis for planning patient care, they provide a means of communication between the physician and other professional groups contributing to the patient's care, they furnish documentary evidence of the course of the patient's illness and treatment, and they serve as a basis for review, study, and evaluation of the medical care rendered to the patient. For these reasons the Joint Commission on Accreditation of Hospitals considers the quality of medical records an important indication of the quality of patient care given in a hospital.

Since medical records reflect patient care, the Commission evaluates a medical record on the basis of whether or not it contains sufficient recorded information to justify the diagnosis and warrant the treatment and end results. In agreement with this principle, the Commission has established certain standards of record keeping which it thinks are essential for good patient care.

I. CONTENT—Medical records should contain the following information:

1. Identification data
2. Provisional diagnosis

There should be a provisional or admitting diagnosis made on every patient at the time of admission. If a patient requires hospitalization, the hospital staff deserves this information to proceed intelligently.

3. Chief Complaint
4. Present Illness
5. History and Physical Examination

Only physicians and house staff are competent to write or dictate medical histories and physical examinations. All pertinent positive and negative findings should be recorded. Nurses, medical record librarians, or secretaries should not be permitted to take medical histories.

6. Consultations

Consultations imply an examination of the patient and the patient's record. The consultation note should be recorded and either signed or authenticated by the consultant.

7. Clinical Laboratory Reports

The original signed laboratory report should be entered in the patient's record. Duplicates are filed in the laboratory.

Reports from laboratories outside the hospital are acceptable in lieu of tests performed in the hospital if the following safeguards are maintained:

a. Work is done in a laboratory approved by the city or state. Laboratory work performed in a physician's office by a technician, nurse, or office assistant is not acceptable. Since the hospital is held responsible for the quality of laboratory work reported in the medical record, it must limit outside laboratory work to approved laboratories.

b. The test is recent enough to be pertinent to the individual case. For example, a serological test for syphilis or an Rh determination done any time during the prenatal period would be acceptable. A urinalysis done prior to 48 hours of admission would not.

c. The original laboratory report is made part of the medical record.

8. X-ray Reports

The original signed radiological report should be entered in the patient's record. Duplicates are filed in the department.

9. Tissue Report

Since all tissues removed in surgery are sent to the laboratory, at least an acknowledgment that the tissue has been received and a gross description should be made part of the record. If a microscopic examination is done, a description of the findings should be made a part of the record. Whether or not a microscopic examination is done should be determined by the medical staff and the pathologist according to the rules and regulations of the hospital.

10. Treatment—Medical and Surgical

All treatment procedures should be documented in the medical record. Except in cases of grave emergency, the patient should receive a complete diagnostic work-up before surgery. Operative notes should be dictated immediately after surgery and should contain both a description of the findings and a detailed account of the technique used and tissues removed.

11. Progress Notes

Progress notes are important in that they give a chronological picture and analysis of the clinical course of the patient. The frequency with which they are made is determined by the condition of the patient.

12. Final Diagnosis

A definitive final diagnosis based on the terms specified in the Standard Nomenclature of Diseases and Operations should be written.

13. Summary

A summary of the patient's condition on discharge and course in the hospital is valuable as a recapitulation of the patient's hospitalization.

14. Autopsy Findings

When an autopsy is performed a complete protocol of the findings should be made a part of the record.

II. SIGNATURES

1. In hospitals without house officers the attending physician should separately sign the history, physical examination, operative report, progress notes, drug and other orders, and the summary. Standing orders should be reproduced on the record and signed by the physician.

2. In hospitals with house officers, the attending physician should countersign at least the history, physical examination and summary written by the house officer. Aside from the fact that this is a legal requirement in many states, it is a protection to the individual physician. It is not considered necessary to countersign progress notes or drug and treatment orders written by house officers. In all instances a physician should sign the clinical entries which he himself makes.

3. A single signature of the physician on the face sheet of the medical record does not suffice to authenticate the entire content of the record.

4. The use of rubber stamp signatures is acceptable under the following strict conditions:
able under the following strict conditions:

a. The physician whose signature the rubber stamp represents is the only one who has possession of the stamp and is the only one who uses it.

b. The physician places in the administrative offices of the hospital a signed statement to the effect that he is the only one who has the stamp and is the only one who will use it.

5. Initials in place of a full signature are acceptable provided that the initials can be recognized as having been placed there by a particular physician who can be identified by those initials.

III. OBSTETRICAL RECORDS

There should be a prenatal history and physical examination on every obstetrical patient. If the hospital and medical staff permit and records are of good quality on forms approved by the hospital, a copy of the prenatal record kept by the physician in his office may be substituted for a history and physical examination done in the hospital.

IV. READMISSIONS

If a patient is re-admitted within a month's time for the same condition, the previous history and physical examination with an interval note will suffice.

V. NURSES' NOTES

The Commission has no requirements concerning nurses' notes. It is the responsibility of the local medical and nursing staffs to develop policies concerning the type and extent of nurses' notes to be kept.

VI. FORMS

1. The Joint Commission on Accreditation of Hospitals recommends no specific medical record forms. Records are evaluated on the basis of content and whatever forms the hospital finds most useful are acceptable. It is common experience that check-off lists do not adequately provide sufficient information to substantiate the diagnosis and treatment.

2. Short Forms

A short form medical record is acceptable in certain treatment and diagnostic cases of a minor nature which require less than 48 hours hospitalization. Short forms may be appropriate for such conditions as tonsillectomies, cystoscopies, lacerations, plaster casts, removal of superficial growths, and accident cases held for observation. The short form should at least include identification data, a description of the patient's condition, pertinent physical findings, an account of the treatment given and any other data necessary to justify the diagnosis and treatment. The record should be signed by the physician.

VII. FILING AND MAINTENANCE OF MEDICAL RECORDS

1. Current records should be completed insofar as possible within 24-48 hours.

2. After discharge, records should be completed insofar as possible within 10-15 days.

3. A system of identification and filing to insure the rapid location of a patient's medical record should be maintained. The unit number system is suggested; however, a serial number system or modification of this is acceptable.

4. Records should be indexed according to disease, operation, and physician.

5. If medical records are coded, it is suggested that the Standard Nomenclature be used.

VIII. PRESERVATION OF MEDICAL RECORDS

The Joint Commission on Accreditation of Hospitals has no standards governing the preservation of medical records. The length of time a medical record is preserved is a matter which should be determined by the local hospital and local laws.

Methods of preservation by microfilming or other means of storage is a decision for the individual hospital to make.

IX. OWNERSHIP

The medical record is the property of the hospital and is maintained for the benefit of the patient, the physician and the hospital. It is the responsibility of the hospital to safeguard the information on the record against loss, tampering, or use by unauthorized persons.

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SPECIAL REQUEST

Since supply of the February, 1955 issue of the Journal is exhausted it will be greatly appreciated if available copies are sent to the Journal office, 1430 Tulane Avenue, New Orleans.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Dr. G. Foard McGinnes of Washington, D. C., will speak on "The Present Status of Poliomyelitis Vaccine" on Tuesday, February 28, 8:30 p.m., Municipal Auditorium.

Dr. McGinnes has been serving as a medical consultant to the National Foundation for Infantile Paralysis since 1953 and as director of the National Foundation's vaccine program. Prior to joining the medical staff of the National Foundation, Dr. McGinnes was associated with the American Red Cross since 1943 and served as Red Cross vice president for health services from 1947 until he assumed his present position. Before his affiliation with the Red Cross, Dr. McGinnes had had nearly twenty years of administrative and teaching experience in public health and preventive medicine.

The sum of experience with the Salk vaccine proves it to be a safe and effective means of preventing paralytic poliomyelitis. This discussion will take up the development of the vaccine, including its manufacture and safety-testing; the evidence supplied by 1955 experience for its high degree of effectiveness; current recommendations for its administration, and an estimate of its availability before the 1956 polio season.

A question and answer period will follow.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

The fourth annual interim meeting of District VII of The American Academy of Obstetrics and Gynecology will be held at the Peabody Hotel, Memphis, Tennessee, March 9-10, 1956.

A two day program has been planned, consisting of 11 scientific papers by Fellows, 6 unusual case reports, 9 short papers by Residents and 16 Luncheon Round Tables.

The Academy banquet with entertainment to follow will be held on Friday evening, March 9th.

Wives are invited.

Doctor William T. Black, Jr., is Chairman of the local Arrangements Committee.

LOCAL DOCTORS INDUCTED INTO FELLOWSHIP IN THE AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

The American Academy of Obstetrics and Gynecology has announced that the following doctors were inducted into Fellowship in The Academy at the Annual Business Meeting during the Fourth Annual Clinical Meeting of the organization at The Conrad Hilton, Chicago, December 12-14, 1955: Herman R. Cohen, M. D., Earl Conway Smith, M. D., and Aynaud M. Hebert, M. D., all of New Orleans.

The American Academy of Obstetrics and Gynecology was organized in 1951 to foster and stimulate interest in obstetrics and gynecology and all aspects of the work for the welfare of women which properly come within the scope of obstetrics and gynecology. It is an organization of physicians whose practices are limited to the medical specialty of obstetrics and gynecology.

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BOOK REVIEWS

Modern Diagnosis and Treatment of the Minor Venereal Diseases; by Orlando Canizares, M. D., Springfield, Illinois, Charles C Thomas, 1954. Pp 131, Price $3.75.

This is an excellent little monograph. It is not an authoritative source but it gives all of the necessary practical information required to diagnose and treat lymphopathia venereum, granuloma inguinale, and chancroid. Since these diseases are lightly treated in standard texts this monograph is an important contribution.

FRED M. HUNTER, M. D.

Standard Values in Nutrition and Metabolism; by E. C. Albritton, (Editor), Philadelphia, W. B. Saunders, 1954, Pp. 380, Price $6.50.

As noted in the foreword, this volume is the second in a series of *Handbooks of Biological Data.* For the monumental task of compiling and arranging the data the editorial committee deserve a vote of thanks from their colleagues.

On the assumption that the information given in the tables with which the reviewer is not familiar is as accurate as that with which he has some acquaintance the values presented have been carefully selected and usefully tabulated.

The value of the book to the clinician would appear to be questionable since relatively little, except perhaps in the section on Nutrition of Foodstuffs, is concerned with man. Most of this same data is also readily available elsewhere. For those who are involved in the basic sciences, however, the book may prove to be of considerable use in saving the time involved searching the original literature for standard values of an obscure nature.

ALAN G. C. WHITE, M. D.

PUBLICATIONS RECEIVED

The C. V. Mosby Co., St. Louis: The Interpretation of the Unipolar Electrocardiogram, by Gordon B. Myers, M. D.

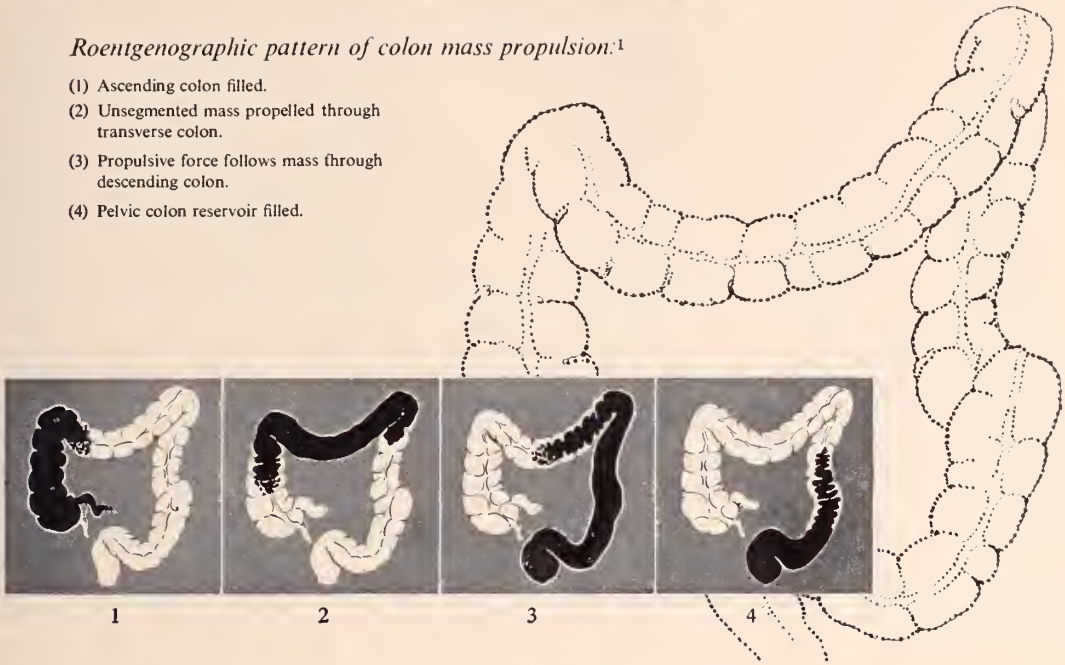
Simon and Schuster, N. Y.: The Complete Medical Guide, by Benjamin F. Miller, M. D.

Charles C Thomas, Publisher, Springfield, Ill.: Physiology and Pathology of Infant Nutrition, by L. F. Meyer, M. D., and Erich Nassau, M. D.; Postural Back Pain, by Milton C. Cobey, M. D.; Causal Factors in Cancer of the Lung, by Carl V. Weller, M. D.

SMOOTHAGE ACTION IN CONSTIPATION

Roentgenographic pattern of colon mass propulsion:[1]

(1) Ascending colon filled.
(2) Unsegmented mass propelled through transverse colon.
(3) Propulsive force follows mass through descending colon.
(4) Pelvic colon reservoir filled.



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1. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice: A Text in Applied Physiology, ed. 5, Baltimore, The Williams & Wilkins Company, 1950, pp. 579-583.
2. Bargen, J. A.: A Method of Improving Function of the Bowel, Gastroenterology *13*:275 (Oct.) 1949.

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1. Rosenberg, S. and Oster, K. A., "Gelatine in the Treatment of Brittle Nails," *Conn. State Med. J.* 19:171-179, March 1955.
2. Tyson, T. L., *J. Invest. Dermat.* 14:323, May 1950.

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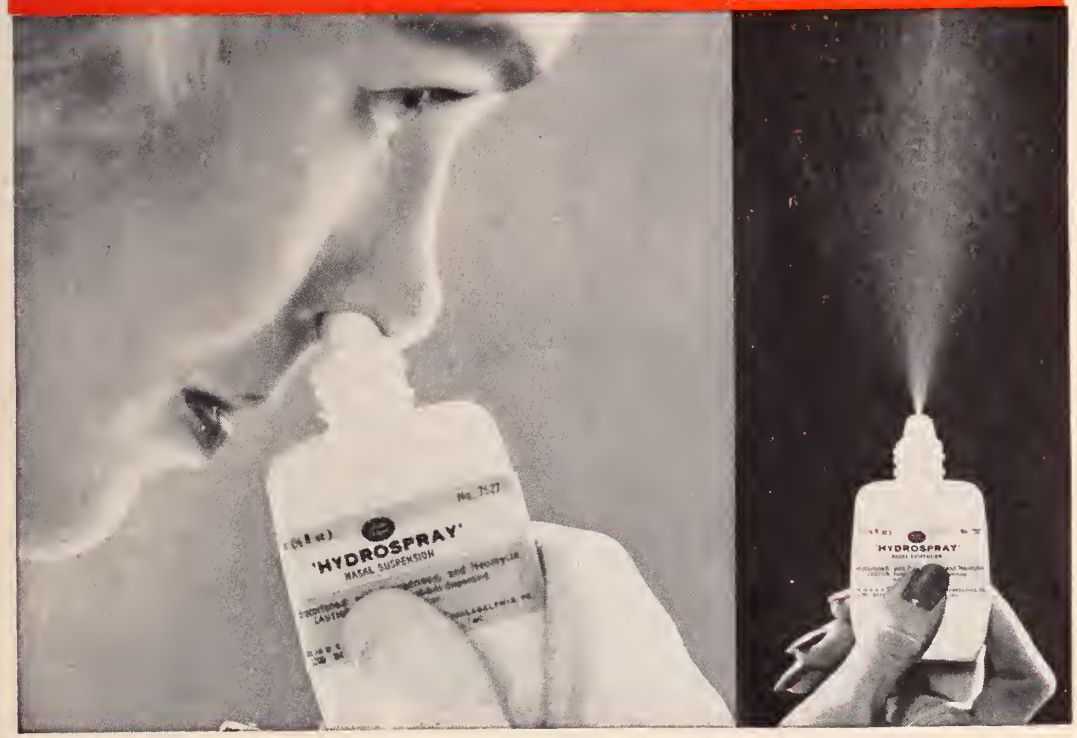
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REFERENCE: 1. Silcox, L. E., *A.M.A. Arch. Otolaryng.* 60:431, Oct. 1954

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Erythromycin in treatment of abcess

6/21/55

DISCHARGE SUMMARY

On 5/23/55 this patient (colored female, age 24) underwent an excisional biopsy of a breast tumor. On 5/24 tumor was removed and patient discharged from hospital on following day.

On 6/3/55 patient was readmitted because of purulent discharge from wound. On 6/3 a hemolytic Staph. aureus (coag. +) was isolated from abscess with the following disk sensitivities: penicillin, 1.5 units; erythromycin, 10 mcg; tetracycline, 10 mcg. Patient was placed on penicillin, 600,000 units b.i.d. for 10 days. On this schedule patient improved but progress was unsatisfactory and wound continued to discharge small amount of purulent material.

On 6/13 penicillin was discontinued and erythromycin started in dosage of 200 mgm. q.i.d. By 6/17 the discharge had stopped and wound was completely healed by 6/19. Erythromycin was continued until the patient was discharged from hospital on 6/21. Temp. was normal throughout hospital stay.

Final diagnosis: breast abscess due to Staph. aureus.

Result: rapid and complete recovery on erythromycin following failure of penicillin.

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1. Moyer, J.H., in discussion of Galen, W.P., and Duke, J.F.: Outpatient Treatment of Hypertension with Hexamethonium and Hydralazine, South. M.J. *47*:858 (Sept.) 1954.

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(1) Payne, R. W.; Shetlar, M. R.; Farr, C. H.; Hellbaum, A. A., and Ishmael, W. K.: J. Lab. & Clin. Med. 45:331, 1955. (2) Bunim, J. J.; Williams, R. R., and Black, R. L.: J. Chron. Dis. 1:168, 1955. (3) Holbrook, W. P.: M. Clin. North America 39:405, 1955.

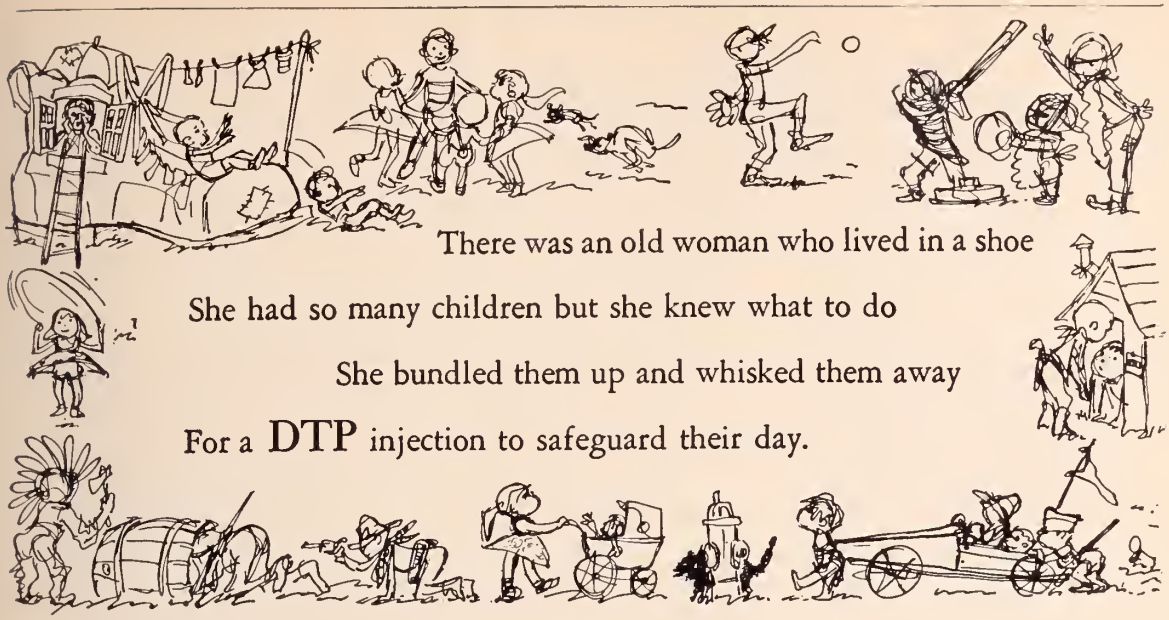
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REFERENCES: 1. Boland, E. W. and Headley, N. E., *J.A.M.A.* **148**:981, March 22, 1952. 2. Ward, L. E., Polley, H. F., Slocumb, C. H. and Hench, P. S., *J.A.M.A.* **152**:119, May 9, 1953. 3. Snow, W. B. and Coss, J. A., *N.Y. State J. Med.* **52**:319, Feb. 1, 1952.

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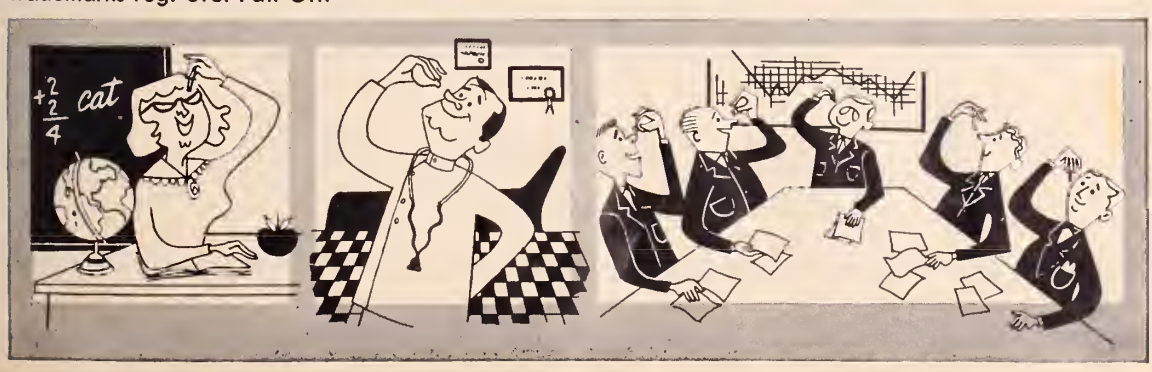
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What Is YOUR Solution to the SHORTAGE Of PATHOLOGISTS?

Louisiana doctors may do well to advise medical students to examine the opportunities in Pathology. More pathologists are needed; this is the "number one" shortage in medical school faculties, as reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in 1954. Hospital opportunities are abundant.

Here is an extract of a JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION editorial:

PATHOLOGISTS NEEDED

"The practice of pathology, one of the most appealing fields of medicine, provides a unique approach to the study of human disease. But this science has not had so strong an appeal to the young medical graduate as have the clinical branches of medicine. Lack of understanding of what pathology can offer and the strong appeal of personal relationships with patients and the usually better financial outlook inherent to successful clinical practice may be responsible in part for this lack of interest. With the exception of those persons who have found pathology intellectually satisfying, this science sometimes has been a second choice to physicians who have failed to find appointment in clinical fields satisfying.

"The pathologist has a singular viewpoint in medicine, since he must constantly be thinking in terms of the causes, the processes and the effects of disease; he is important in any medical program. The Council on Medical Education and Hospitals of the American Medical Association and the American College of Surgeons, realizing this, have stipulated that the pathology service in all registered hospitals must meet a certain minimum requirement. However, there are not enough certified pathologists to provide this coverage. The American Board of Pathology has certified 1,658 physicians since its organization, in 1936, of which some are now deceased or retired. If the number is divided among the 6,572 registered hospitals, there is one pathologist for every four hospitals. Moreover, this number is less than is actually needed for the 1,079 approved hospitals having resident and fellowship training programs, since each approved hospital should have at least one pathologist and the university teaching centers always have several.

"If the present supply does not satisfy the present demand, which is known to be increasing rapidly, a critical situation will arise. It becomes even more critical when one realizes that of the estimated 1,001 approved residencies in pathology, there are 105 appointments unfilled. The expected yearly output of pathologists is a little over 200; this number is reduced to an estimated 180 by the unfilled positions. This situation should demand the immediate attention of all persons interested in high standards of medical practice.

"Physicians considering pathology should be made cognizant of the great opportunity in this relatively new medical specialty. The unique scientific position of pathology and the pathologist in the practice of medicine should be a strong inducement to scientifically minded physicians. PATHOLOGY SHOULD HAVE NO DIFFICULTY IN ATTRACTING THE NECESSARY NUMBER OF CANDIDATES FOR SPECIALIZATION IF THE YOUNG MEDICAL GRADUATE FREELY APPRECIATES THE AVAILABLE OPPORTUNITIES." *

* JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, October 21, 1950, Vol. 144, page 690, modified from editorial.

THE MEMBERS OF THIS SOCIETY PLEDGE FULL SUPPORT AND CO-OPERATION TO THEIR FELLOW LOUISIANA PHYSICIANS IN THE PRACTICE OF MORAL AND ETHICAL MEDICINE

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POLIOMYELITIS VACCINATION

The State Poliomyelitis Advisory Committee composed of representatives of the Louisiana State Medical Society and the State Department of Health met with the State Health Officer Wednesday, January 4, 1956 and reviewed the experience of the State Department of Health with poliomyelitis vaccinations.

This experience indicates that polio vaccination is very effective in lowering the occurrence of paralytic poliomyelitis and in decreasing the occurrence of all forms of poliomyelitis.

Of the 164,910 children in the 1st and 2nd grades of school, 81,695 received two injections of polio vaccine and 83,215 were not vaccinated. More than 7 times as much paralytic polio and more than 5 times as much of all forms of polio occurred in the non-vaccinated group as in the vaccinated group.

About 60 days is required for vaccination to produce optimum protection. The polio season usually starts about April 15th in Louisiana. To assure as wide protection as possible before the 1956 polio season starts, the State Polio Advisory Committee suggests that physicians immunize all pregnant women and all persons 20 years of age and under as quickly as they can.

Vaccine is readily available and may be obtained as usual through regular commercial channels or from parish health units in accord with existing regulations.



Louisiana State Department of Health

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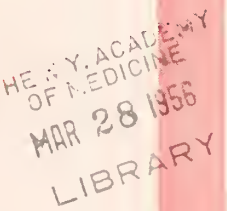
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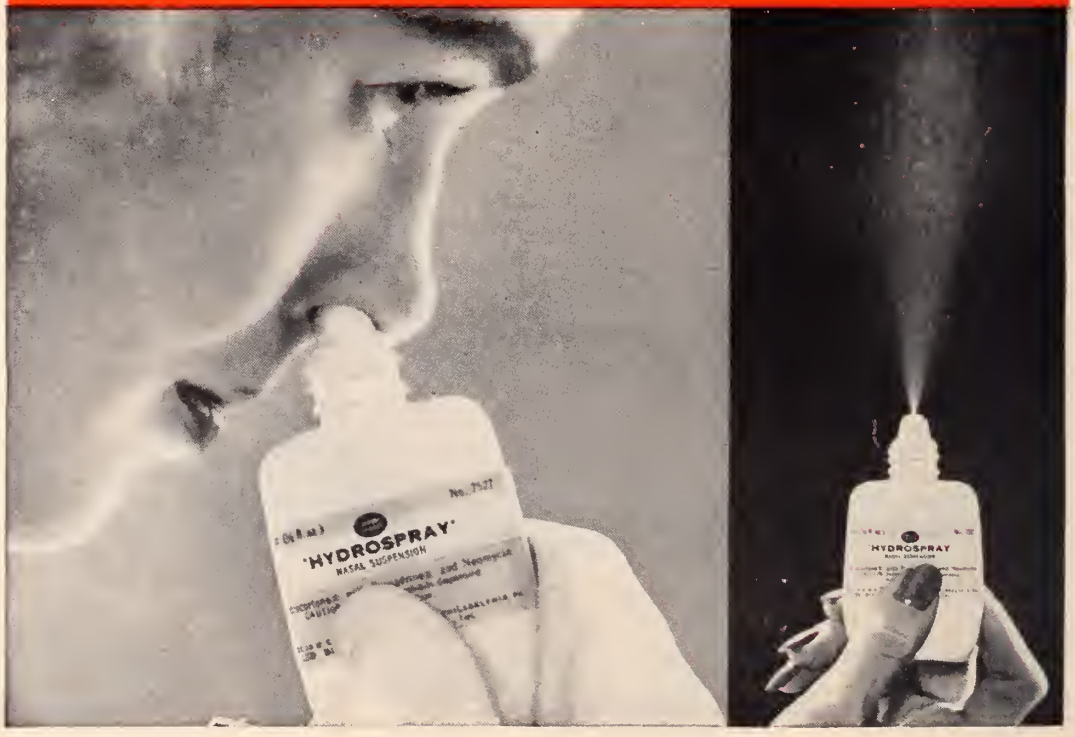
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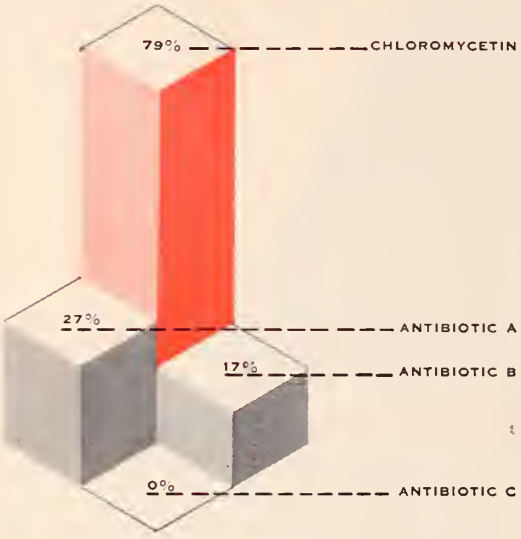
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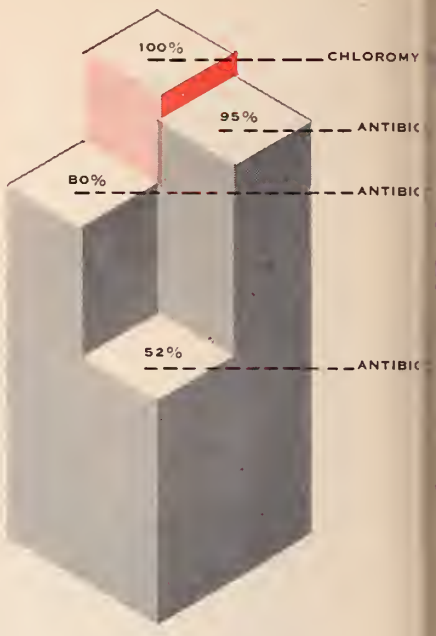
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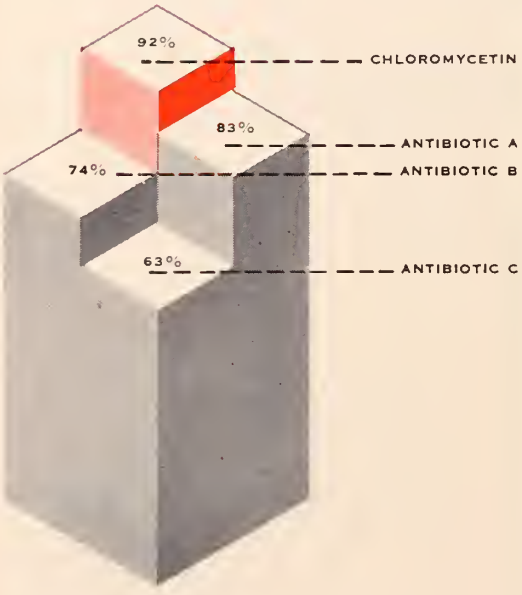
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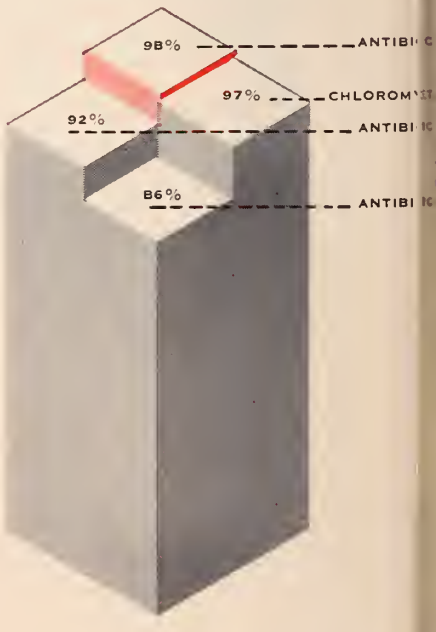
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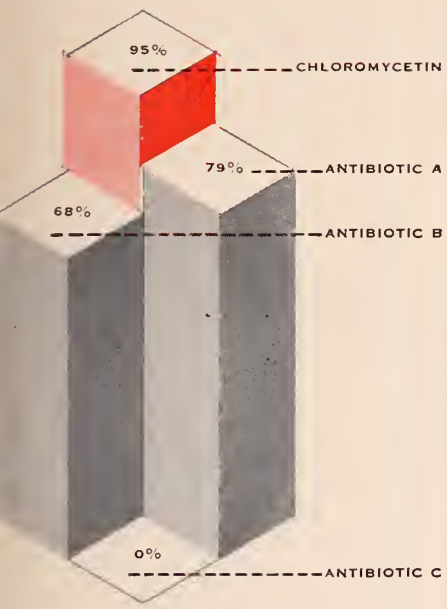
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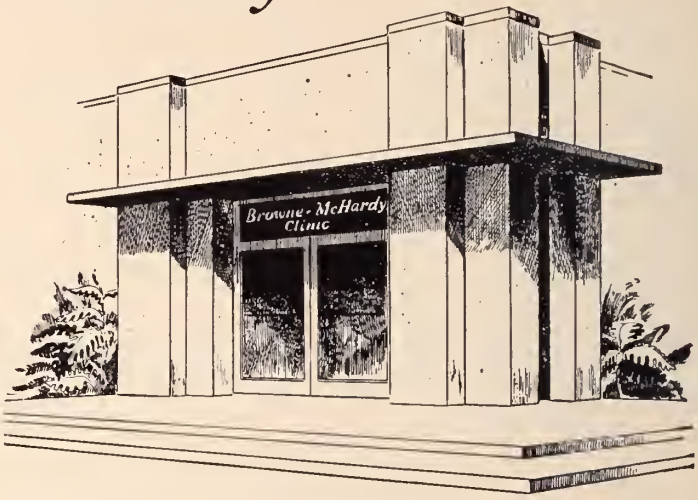
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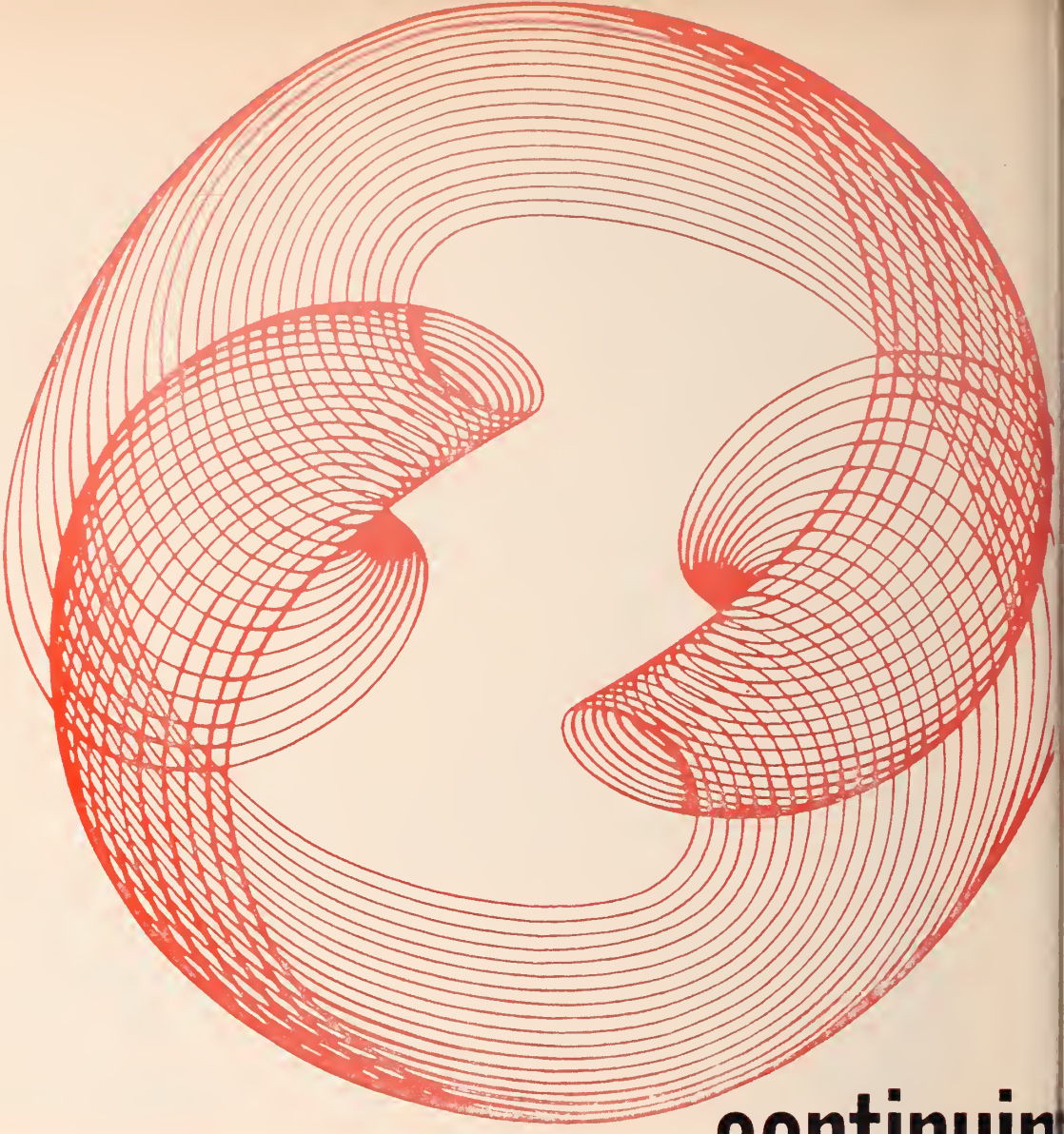
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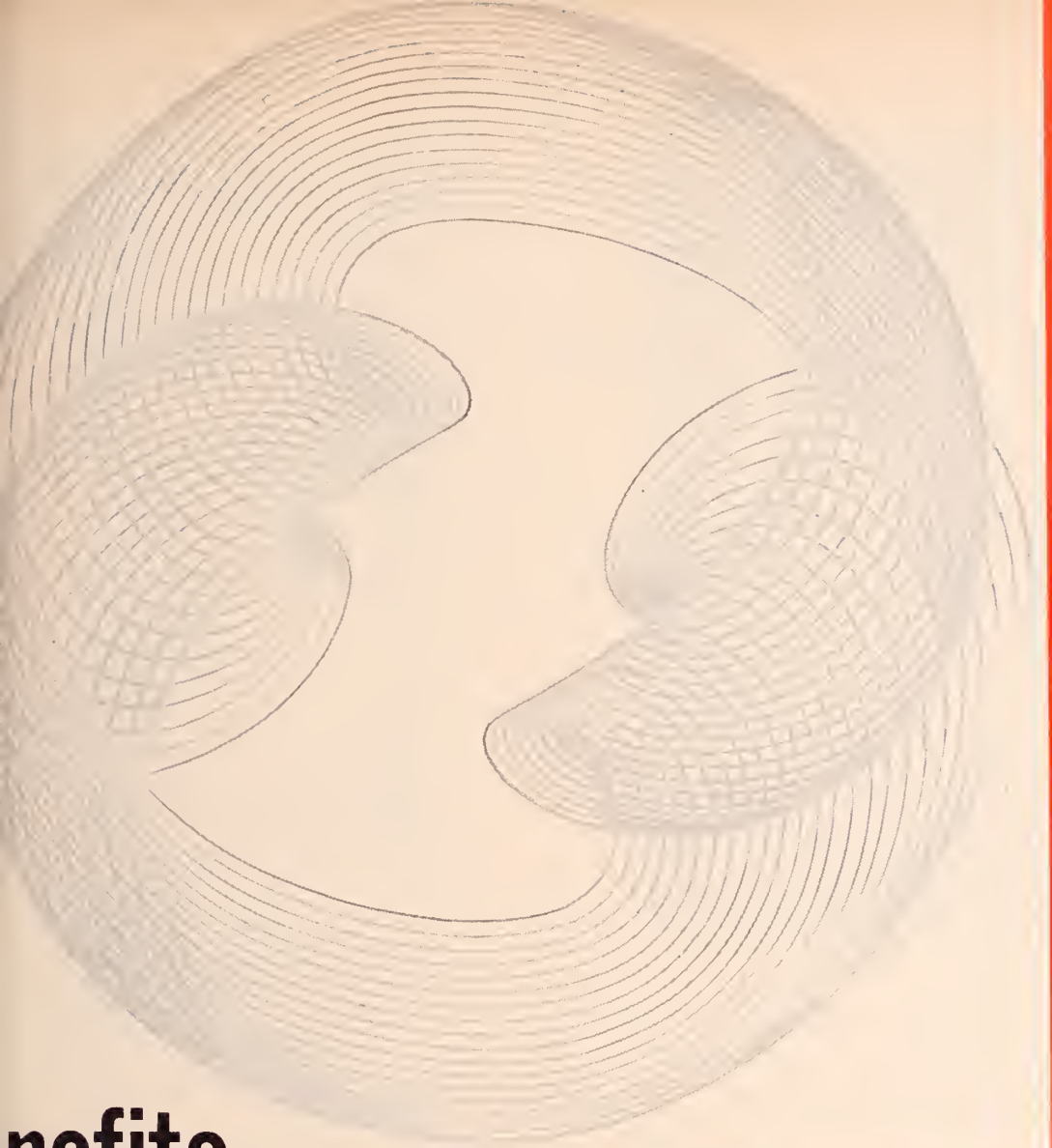
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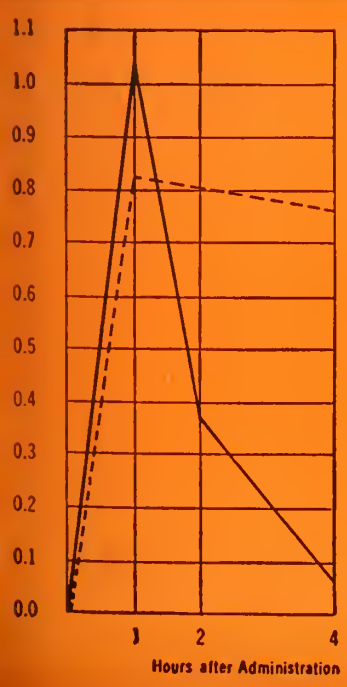
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It must be emphasized that the test for C-reactive protein (CRP) is not specifically diagnostic for any particular disease. It does, however, indicate an acute inflammatory condition and gives a more accurate measure of the intensity of such reaction and the response of the patient to therapy, than does the sedimentation rate.

At present the most widely used test to determine the presence of an inflammatory process is the Erythrocyte sedimentation rate (ESR). A number of different factors influence the rate of fall of red blood cells. These factors vary in different diseases, and also with the individual. Because a multiplicity of factors—unrelated to an inflammatory condition—may influence sedimentation rate, the ESR is often misleading. For example: in certain types of anemia the ESR is elevated because the number of red blood cells is reduced.

In contrast, the CRP depends on only one factor—the presence of C-reactive protein in the serum of a patient. THEREFORE, FALSE POSITIVE TESTS DO NOT OCCUR SINCE CRP IS NOT PRESENT, EVEN IN TRACE AMOUNTS, IN NORMAL SERA.

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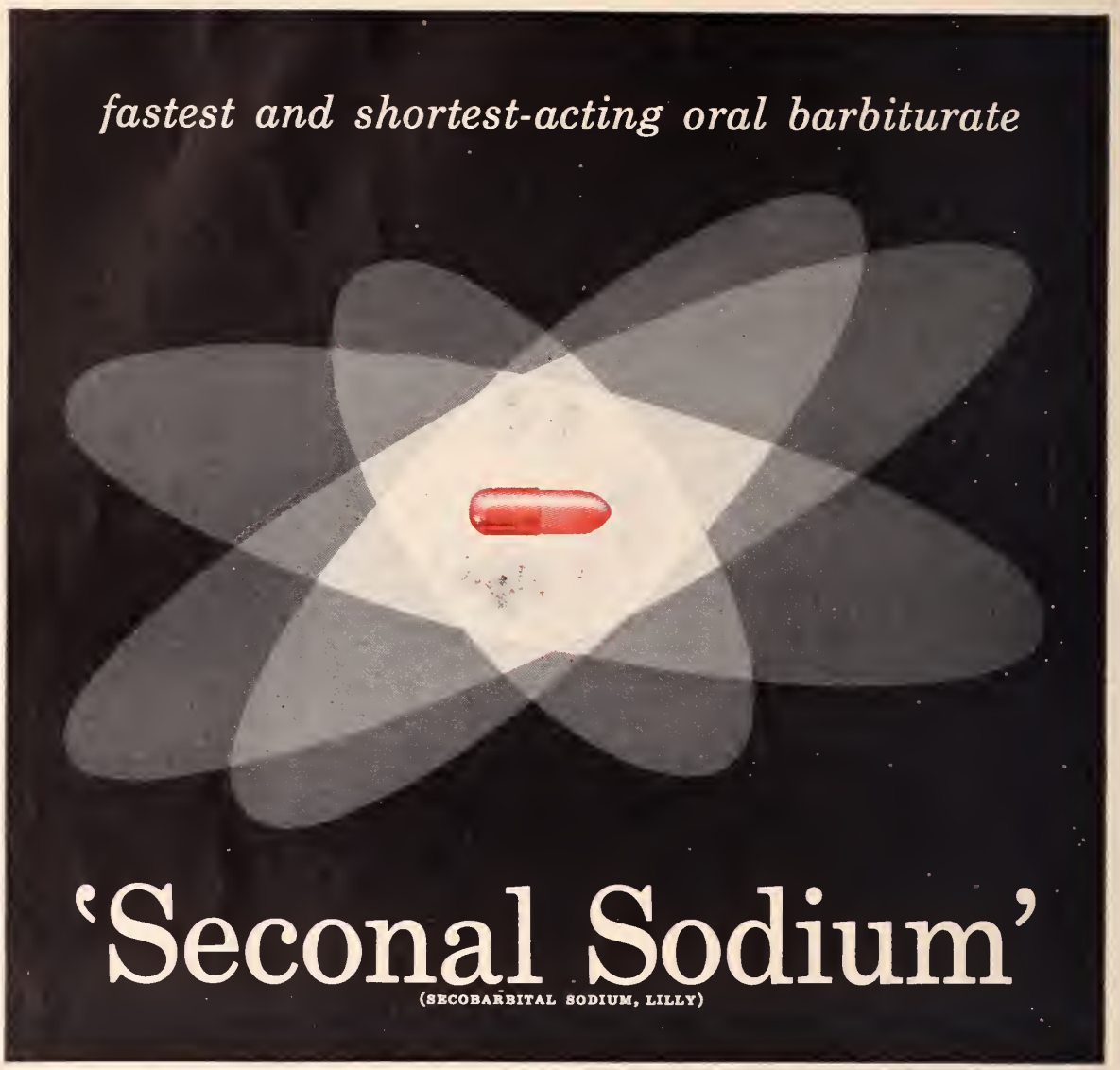
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SURGERY OF THE BILIARY TRACT

HOWARD MAHORNER, M. D. *

New Orleans

From time to time it is necessary to re-evaluate our viewpoint concerning surgery for biliary tract lesions. Advances in recent years have made it possible to segregate more definitely medical from surgical lesions, but this is still a weak feature as far as both surgeon and clinician are concerned, and honest judgment becomes in the final analysis the real line of decision. No advice for surgery is without its just content of philosophy, a necessary ingredient in treating the patient and not just the disease, and all advice to operate must have one basis for its validity, absolute integrity on the part of the surgeon. The indications for surgery are never purely scientific, but what is not obvious, is the fact that they are never debatable for the conclusion justifying surgery depends solely in the last analysis on what is good for the patient. It is the application of judgment in this respect which may be fallacious and debatable, influenced as it is by so many variables. Among the infinite variables there is one which is seldom acknowledged, but which is of tremendous importance. The patient may be the same and the circumstances and other condition the same, but the ability of the surgeon not only may influence the decision for or against surgery, it also may influence tremendously the type and the extent of the procedure. It is all well and good to say remove the gallbladder when it is acutely inflamed but this may be technically very difficult and it is not necessarily a uniform rule or the best procedure in the hands of all surgeons, for what may be safe for one may result in tragedy, an injured common duct, in the hands of another. The implication is not that the latter should not operate but that he should modify the procedure to conform to the stage of his technical perfection and experience. Ultimately the latter may become better than the prior surgeon but no general rule can be made as to what is the best thing to do. It is a justified conclusion that indications for operations exist not only in patients but also in the surgeons because of variations in abilities even in the same man at different stages. Let not the atmosphere of science dissipate the truth that when a serious operation is contemplated, particularly if it is of tremendous importance, there are many able surgeons but credit for the part technical aspects play in their make-up has been de-emphasized by the march of scientific improvements and the justified emphasis placed upon it. A surgeon is still a surgeon and his most important job is surgery.

Let us turn to a consideration of some of the changing aspects in the more common surgical lesions of the biliary system. The ones which I choose to comment upon

* From the Department of Surgery, Louisiana State University, School of Medicine.

Read at the Meetings of the Third District Medical Society, Lafayette, October 1, 1955, and of the Fourth District Medical Society, Shreveport, October 4, 1955.

are the ones which more frequently come to our attention and the comments are made particularly because they seem to me to be more interesting features of modern changes.

CHOLELITHIASIS

Gallstone is the most common lesion of the biliary tract requiring surgery and it is a very, very common disease. The first point about which I wish to comment is the question:—"Should gallstones be removed simply because they have been discovered?" The answer is no. They should be removed if their removal is better for the patient and there are numerous influences which are brought to bear on making the decision in any given case. Actually I feel that a patient, who is young and has gallstones and never has had symptoms, should have them out. The procedure of removing the gallbladder from such a patient by capable hands is a negligible risk far overbalanced by the threat of illness resulting from recurrent attacks in the future or some complication which might increase the risk. In older people also the quiet gallstone proposes a problem in conscientious judgment. The older patient with gallstone colics has a very serious illness and repeated attacks drag them down. If one waits and procrastinates until sugery just has to be done to prolong life or restore health, it is often done at tremendously increased risks. Therefore, if there is no contraindication, I feel that when such a person has some symptoms, even though not of a major type, she should be advised to have the gallbladder removed but no importuning pressure or forceful threatening argument should be given them in order to make them accept this. For then the insistence may make the advice more fortuitous for the surgeon than it is for the patient. The patient has a perfect right to choose without the harrowing, threatening insistence of, among other things, "the question of malignancy" being brought up just to get them to accept surgery. It is perfectly obvious that patients with recurrent gallstone attacks should have their gallbladder removed. They are running more risk with it than they are with operation under normal circumstances. The way for them to get rid of the disease is by surgery and few would debate the justifiable application of it in these instances.

I would like to make brief comment about certain features of the technical procedure which seem important and are insufficiently emphasized. Immediately after a surgeon opens the abdomen for a biliary tract lesion he should turn his attention not to the gallbladder or common duct but to the evaluation of other features in the abdomen which may or may not have a bearing on the symptoms. If he makes a policy of doing this first and with a definite routine he will not forget it, for such evidence may be of inestimable value in forestalling postcholecystectomy syndrome or properly evaluating it should it develop. It is a good plan to begin in the left upper quadrant, feel the spleen, then check the esophageal hiatus for hernia, then examine the stomach by palpation and as far as possible by visible means. Then he should feel the entire pancreas and compare the consistency of the tail and body and head, note carefully its size, then carefully examine the liver, feel the superior surface for tumor or abscess, look at the liver, then by palpation the kidneys and retroperitoneal areas and unless there is a very acute process check the pelvis. Finally after all of this, attention is turned to the gallbladder and common duct. Such a careful routine will obviate overlooking something which could be contributing to the symptoms.

There may be time for comment about the one single feature in performing cholecystectomy. It is the most important maneuver of all and in principle it means seeing and knowing where you are. The common duct must be visualized above and below the entrance of the cystic duct and these three limbs must be clearly identified before any clamps are applied. In order to accomplish this it is necessary to carefully cut the peritoneum on either side of the ampulla of the gallbladder and the cystic duct and down over the common

duct. The peritoneum is then pushed aside just as in liberating the bladder from the lower uterine and cervical segments. Then after carefully pushing back loose areolar tissue the ducts come into view. Unless such clear anatomic disclosure is accomplished the gallbladder should not be removed.

CHOLEDOCHOLITHIASIS

Stones in the common duct become an additional problem. The common duct was explored in 26 per cent of a series of 312 private cases operated upon for benign lesions of the biliary tract. Common duct stones were found in 36 per cent of those in whom the common duct was explored and in 10 per cent of the patients. Eighty per cent of the patients with stones in the common duct are jaundiced and 20 per cent are not. In the group of patients who have obstructive jaundice, 40 per cent of them will have no stones. There are other benign causes for obstructive jaundice, among which the most common are pancreatitis and stenosis of the papilla of Vater. These lesions must be considered, i.e., thought about at the time surgery is being performed for common duct obstruction. In this way only will their presence be detected, and proper measure to obviate them be undertaken.

The indications we use for opening the common duct are approximately those which appear in the literature, but there is considerable variation in the percentage of the common ducts explored from that reported by some surgeons. We explored the common duct in approximately 26 per cent and stones were found in 36 per cent of these with evidence of obstruction of an additional type such as ampulla stenosis in an additional 23 per cent. Approximately 40 per cent of duct explorations yielded negative findings.

The indications which influence us to open the duct are as follows:

1. The enlargement or dilatation of the common duct.
2. Thickening of the common duct when it cannot be explained on the basis of edema of the gastrophrenic omentum due to acute cholecystitis.
3. Enlargement and/or increased consistency of the pancreas indicating chronic or recurrent pancreatitis.
4. Jaundice or a history of previous jaundice.
5. Palpable stones in the duct.

We do not include in these indications the presence of small stones in the gallbladder. That certainly would raise the number of ducts we explore up to a very high level because the incidence of at least some very small stones in all gallbladders containing stones is relatively high.

PANCREATITIS

Pancreatitis is probably a very much more common disease than we formerly realized. Since this discourse is not particularly concerned with it, no discussion of its types is given. It is possible of course to diagnose severe pancreatitis with a certain degree of accuracy preoperatively, but the increasing incidence of pancreatitis is occasioned by finding evidences of pancreatitis at operation. The pancreas should be palpated carefully in all biliary tract operations. In operations for benign lesions of the biliary tract we have found an enlarged hard pancreas in 4.6 per cent. Such evidence is more often disclosed when there is history of radiation of pain through to the back on the left. Fat necrosis need not be present for sufficient justification, for the diagnosis of pancreatitis at operation is simply enlargement and hardness of the pancreas.

When evidences of pancreatitis are found at surgery an attempt is made to do something about it. The obstruction or potential obstruction at the ampulla of Vater is relieved by transduodenal ampullotomy. A high percentage of pancreatitis of the chronic or the acute type is caused by partial obstruction. For that reason I take a very aggressive attitude toward the relief of it. The common duct is explored and intubated. If it is not of the fulminating acute variety, a transduodenal ampullotomy under direct vision is performed and a T-tube is placed transvaterianally into the duodenum. Excellent results have been obtained as evaluated

by follow-up of patients (14)treated in this aggressive fashion. If the patient has an acute hemorrhagic type of pancreatitis, I feel it is still advisable to decompress the biliary tract, but when there is such massive edema the duodenum is not opened, a tube may be placed into the gallbladder which decompresses the biliary tract, or else if it can be revealed without too much dissection, a T-tube is placed in the common duct.

Transduodenal choledochoampullotomy should not be undertaken lightly. It is a potentially dangerous procedure though we have been able to accomplish it 42 times in our series and without a fatality. In 81 common duct explorations the supraduodenal was the only method used in 39 and the combined supraduodenal and transduodenal in 42. There were two deaths, both among the supraduodenal explorations. I am convinced surgeons will resort, in the future, more frequently to the combined supraduodenal and transduodenal approach when there is any doubt about the passage of the sound through the papilla.

STRICTURE OF THE COMMON BILE DUCT

Stricture of the common bile duct is either congenital or acquired. Most of the congenital types are intrahepatic and relief of it surgically is difficult or impossible. Extrahepatic congenital stricture may be treated surgically with brilliant results, but it is rare. The majority of benign strictures of the common bile duct are acquired; and unfortunately much to the discredit of the profession, always, they are man made. It is naive for a man to think that the patient upon whom he operated for an acute gallbladder and who subsequently developed stricture of the common bile duct, did so because inflammation in that region resulted in damage to the duct. The truth of the matter is the stricture resulted from his cutting out part of the common duct. We must realize these things and acknowledge them and then we will become better. Any bizarre type of explanation for stricture of the common duct other than the horrible truth is not acceptable. Because these strictures are man made they are the result of poor technique. A surgeon must always know where he is when operating on the biliary tract, and he must see it and see it without question before he makes a destructive move with a clamp or a knife or scissors. If he does not lose his equanimity, which may be defined as a quietness of spirit, the basis of which is integrity, he should stop and reflect and decide to do less than he had hoped to accomplish if this less is the better path. Certainly he should not remove the gallbladder unless the ducts are visible and well defined.

In the repair of strictures it is important to get beautiful exposure, to get the lesion right up in the hands and before one's eyes. They are notably difficult operations and the little experience I have had with them makes me believe that the thoraco-abdominal incision which brings the lesion closer and more in the open is the best one unless the stricture is very low in the common bile duct. A Roux-Y type of construction bringing a loop of jejunum up and anastomosing the proximal stump of the common duct to it such as Warren Cole advises, is probably the best technical procedure in most instances, although of course if the duct itself can be reconstructed after excision of the stricture, that is more advisable.

MALIGNANT LESIONS

Malignant lesions causing obstruction of the biliary tract are now amenable to surgery. Carcinoma of the ampulla of Vater carries a reasonable hope of five years' survival after pancreatectomy and for that reason it is not debatable that this operation should be performed. The risk is considerable for pancreatectomy but it can be accomplished with less risk than is incurred by a neglected carcinoma of the ampulla of Vater. Less aggressive surgery such as by-pass operations are not justified as an alternative. Carcinoma of the pancreas, on the other hand, which causes a similar type of obstruction has been a very discouraging and disappointing surgical lesion. The operation of pancreatectomy is a big one. Many of the cases are inoperable because of extension

at the time they are explored and those which are presumably confined to the pancreas have a high rate of recurrence after pancreatectomy. In my own limited experience of 11 pancreatectomies for malignancy only one patient had a survival time of as long as two and one-half years. The rest of them died of recurrences within a briefer period or from the operation. Therefore, many able men have begun to feel that the aggregate survival of patients after pancreatectomy for carcinoma, even granting that 1 in 100 is cured, is less than the average survival time of a similar group of patients if no surgery is performed. This unhappy viewpoint is to a certain extent justified at the present time, but I personally think that resection of the pancreas should be done for the carcinoma, if the appearance at surgery is that extension has not occurred beyond that organ. In my experience also the operation of pancreatectomy is one of the most formidable in the realm of surgery. It is hard and it takes a long time, and I have found it far more technically difficult than pneumonectomy for example or gastrectomy or even an esophagogastrectomy or even excision of the abdominal aorta and graft. All of these major type procedures in my experience can be done in shorter time than pancreatectomy.

CARCINOMA OF THE LIVER

Carcinoma of the liver, if it is unilateral and primary, is amenable to surgery. Hemihepatectomy may be accomplished to eradicate it. There is increasing evidence that carcinoma of the liver begins in cirrhotics and in multiple places but unless it is obviously a bilateral disease the surgeon can remove one lobe, left or right, and can possibly obviate the otherwise fatal illness. A different attitude, however, maintains as far as I am personally concerned with regard to hepatic metastasis even though they are single ones. As a surgeon, I hate mutilating operations, those that prolong the patient's life or just the upper half of his body with no possible hope of cure or health so that he suffers more with the inevitable dragged out into a lingering illness. There comes a time when patients should be permitted the mercy of death, though I am not intimating that it must be made for them. Resection of the liver for metastatic malignancy, even though one nodule is found, as far as I am concerned, belongs in the category of mutilating operations. This type of surgery cannot possibly help people. Suppose it does prolong their life some months and suppose the surgeon has done some big technical procedures and had another operation, from my own personal viewpoint and philosophy it is not for the best interest of the patient.

SUMMARY

Biliary tract surgery is making progress. It is being done with increasing frequency. People continue to have gallstones and until some means is found to prevent them on a biologic basis or some means such as sound waves is found to fracture and dissipate them and prevent their recurrence, surgery will be a beneficent method of management in these patients.

Other benign lesions justify surgery of the biliary tract and can produce brilliant results. I believe pancreatitis will be found among these in increasing frequency. Brief experience has shown it to be amenable to aggressive action, more so than to indirect or conservative measures.

Malignancy necessitates surgery of the biliary tract, and operations for it though formidable may offer a real chance for restored health.

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CARDIAC SURGERY IN A COMMUNITY HOSPITAL; A REPORT OF 14 CASES *

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There has been remarkable progress made in the field of cardiovascular surgery during the past several years. While many of the acquired and congenital diseases of the heart are still wanting for

* Presented at the Seventy-fifth Annual Meeting of the Louisiana State Medical Society, New Orleans, May 3, 1955.

successful, practical surgical treatment, they are being attacked with promise in the research laboratory and in isolated clinical studies. Several of the acquired and congenital defects have already been successfully treated in great numbers by standardized, proven surgical procedures. Among the latter, the patent ductus, tetralogy of Fallot, coarctation of the aorta, pulmonary valvular stenosis, mitral stenosis, constrictive pericarditis, and aneurysmal and occlusive disease of the aorta have all met with gratifying results.

With the clarification of diagnostic criteria, the increasing number of comprehensively trained thoracic surgeons, and the improvement in hospital facilities to meet this challenge, cardiac surgery can now be successfully executed in many community hospitals on the periphery of the, "medical center". There must, of course, be available competent medical and pediatric consultation. Expert anesthesia is a requisite. Trained nursing and first rate clinical, laboratory, and radiological facilities are essential. One must, of course, have the basic physical equipment to carry out the needed diagnostic and surgical procedures. All of the foregoing are richly available in Baton Rouge in both of its hospitals, Our Lady of the Lake Sanatorium and the Baton Rouge General Hospital.

The purpose of this report is to outline my experience with 14 consecutive cardiovascular surgical cases performed during the period November 19, 1953, through March 5, 1955. No attempt will be made to document the details of diagnosis, surgical selection or surgical technique, all of which have been adequately covered in the literature within recent years.

The first elective cardiac surgical procedure in Baton Rouge was performed on November 19, 1953. The cases were about equally divided between the two hospitals. Three cases had preoperative cardiac catheterization performed at the Heart Station of Charity Hospital, New Orleans, Louisiana.

Though the series is small, a wide variety of congenital lesions are represented. There was one postoperative death, in the mitral stenosis group. All of the remaining patients are living and well at the time of writing.

MITRAL STENOSIS

There have been six mitral commissurotomies. (Table 1) The technique and approach has been that standardized by Harken and Bailey, designed to split or cut the fused valve commissures so as to approximate normal valvular function. In one case, because of an atretic, fibrotic appendage, it was necessary to approach the valve through the atrial wall. Anesthesia was expertly administered in each case, with the patient awake on return from the operating room.

The one death was in a 28 year old female, severely disabled from mitral stenosis and intractable right sided failure. There was no history of previous embolic accident. She was fibrillating at the time of surgery. A tight stenosis was found and what was felt to be an excellent fracture obtained. On return from the operating room, though fully reacted, she was seen to have right sided weakness.

TABLE 1
MITRAL STENOSIS GROUP

Patient	Age	Preoperative Classification	Finding at Surgery	Complication	Postoperative Improvement
R. H. (f)	56	M. S. IV	Tight stenosis	0	Excellent
D. B. (f)	41	M. S. IV	Tight stenosis	Pneumonitis R. L. L.	Excellent
R. S. (m)	28	M. S. III	Mitral stenosis & insufficiency	0	Good
G. S. (f)	28	M. S. IV	Tight stenosis	Left middle cerebral embolus	Died 4 days P.O.
M. C. (m)	47	M. S. & M. I. IV	Mitral stenosis & insufficiency	0	Fair
V. P. (m)	27	M. S. IV	Tight stenosis	0	Good

Within a few hours, she showed complete right hemiplegia and aphasia and over the ensuing seventy-two hours became less reactive, with a temperature rise to 104 degrees. She expired on the fourth postoperative day. It was of interest that her rhythm reverted to normal following surgery and she at all times seemed to demonstrate improved cardiac function.

Patients have been classified preoperatively as to their surgical risk and morbidity status by the grouping I through IV advocated by Ellis and Harken, and widely accepted.

Selection for surgery was difficult in 2 cases in which a systolic apical murmur was heard in the presence of otherwise classical signs and symptoms of stenosis. Both of these cases were in the group IV salvage category, and at surgery were found to have associated insufficiency, but with a stenotic element as well. Both of these patients survived surgery and seem to show moderate improvement thus far. The 3 patients who had pure stenosis are remarkably rehabilitated, and all 3 were advanced group IV cases. Three of the 6 patients had had preoperative embolic accidents. Case V. P. had two severe embolic episodes two years earlier as well as subacute endocarditis. His valve was found to be markedly calcified, and was the only case which required instrumental valvotomy (Brock valvulotome). The striking evidence is that advanced cases such as these, in a generally above average age group, can be taken through surgery with a reasonable mortality risk, much reduced over the experience of a few years ago.

CONGENITAL GROUP

There were 8 cases of congenital heart disease in the operated group (Table 2). It is interesting to note that with the exception of the 2 cases of tetralogy of Fallot and 1 ductus case, the remaining 5 were told at earlier ages that they had, "heart trouble". However, it was not until shortly before surgery that a definitive diagnosis was made. Three of the cases, the two tetralogies and the case of pulmonic stenosis had preoperative cardiac catheterization at the Heart Station of Charity Hospital, New Orleans. The diagnosis of each of these was made, however, on the basis of fairly classical clinical and fluoroscopic evidence.

TETRALOGY OF FALLOT

Both cases had the classical auscultatory findings, the ischemic lung fields, and the typical *coeur en sabot*. Catheterization studies suggested an infundibular type of pulmonic stenosis in each case. Both had left sided aortas. The surgical approach in both cases was through the left side.

Case W. D. was the most severe, with intense cyanosis and marked exertional dyspnea. She had never been able to attend school and exhibited marked clubbing and polycythemia. She has had a

TABLE 2
CONGENITAL GROUP

Patient		Age	Defect	Operation	Complication	Result
W. D.	(f)	9	Tetralogy of Fallot	L. pulm. artery subclavian anastomosis (1-22-54)	O	Good
B. C.	(f)	9	Tetralogy of Fallot	L. pulm. artery subclavian anastomosis (8-21-54)	P. O. Cerebral Anoxia	Fair
P. S.	(m)	10	Patent Ductus	Triple ligation (11-19-53)	O	Good
L. B.	(f)	19	Patent Ductus	Division (12-20-54)	Transient Lt. Recurrent Palsy	Good
T. F.	(m)	32	Pulmonary Valvular Stenosis	Pulmonary valvotomy (6-10-54)	P. O. Bleeding	Good
S. A.	(f)	18	Coarctation	Resection with anastomosis (8-25-54)	O	Good
P. T.	(m)	24	Coarctation	Resection with anastomosis (10-22-54)	Transient Lt. Leg Weakness	Good
J. L.	(m)	24	Coarctation	Resection with insertion of homograft (2-6-55)	O	Good

remarkable clinical improvement from a left subclavian pulmonary artery anastomosis. She is now at school and able to partake of almost unlimited activity. She is no longer cyanotic and there has been some regression of the clubbing.

Case B. C. was quite cyanotic but able to attend school, though unable to tolerate exercise. On the second postoperative day, after a satisfactory anastomosis and immediate recovery, while being transferred from nasal oxygen to an oxygen tent, she had a convulsion, lost consciousness, and exhibited a bilateral flaccid paralysis. She slowly recovered over a period of two weeks, but with residual leg weakness which has only recently returned to normal. It is felt that she suffered cerebral anoxemia during the immediate postoperative handling. Her cyanosis is today almost gone, except on exercise. Her overall result has not been as dramatic as the first case, but she is able to ride a bicycle and has a much improved exercise tolerance.

PATENT DUCTUS

In the ductus group, patient P. S. had a long ductus and was ligated after the technique described by Blalock, using two transfixion sutures at each end. He was asymptomatic before surgery and has done very well, with some diminution in the size of his heart on x-ray comparison.

Case L. B. is a college student who had just recently begun to note tachycardia and mild exertional dyspnea. She had had a continuous murmur in the second left interspace noted since birth, but a diagnosis of patent ductus had not been made until her initial physical examination on entrance to Louisiana State University. At surgery, she had a large, short, sclerotic ductus which was extremely friable and required mobilization of the aortic arch and temporary clamping of the aorta to close the divided ductus. Her aorta was occluded for twenty-two minutes with no untoward sequelae. She did demonstrate a transient left recurrent nerve palsy from inadvertent trauma to the left recurrent laryngeal nerve which wound about the ductus. She has shown an excellent clinical response thus far.

Neither of these 2 cases demonstrated any evidence that might have suggested pulmonary hypertension and some reversibility of flow within the ductus. Preoperative cardiac catheterization was therefore felt to be not necessary. Where there is evidence of possible reversibility of flow as evidenced by right axis deviation on electrocardiographic or right ventricular enlargement, or peripheral cyanosis on exertion, the ductus should then be considered to be not uncomplicated and catheterization studies considered.

PULMONARY VALVULAR STENOSIS

The one case of pulmonary valvular stenosis was in a 32 year old male who had noted progressive exertional dyspnea for several years. The parents were told when he was a child that he had a, "leaky heart". He presented the classical pulmonic, blowing, systolic murmur and thrill with an enormous pulmonary artery and right ventricular hypertrophy. Catheterization studies revealed what appeared to be a patent foramen ovale, but without any significant shunt. The pressure in the right ventricle was 100 mms. Hg. with an abrupt drop when the catheter tip entered the pulmonary artery.

At surgery, he presented the classical picture of congenital valvular stenosis. The valve was digitally palpated and had a lumen of about 5 mms., which could be stretched to allow the index finger to

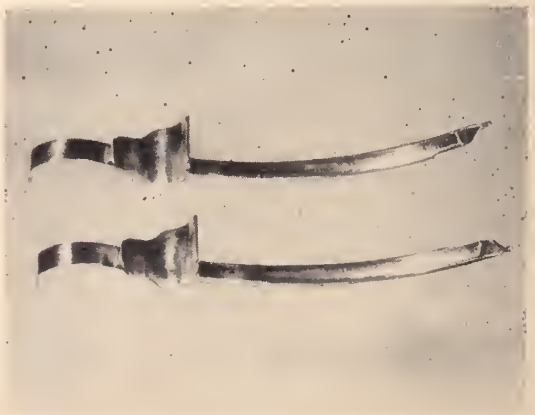


Figure 1. The paired Nichols pulmonary valvulotomes used to incise the conelike fused cusps of pure valvular stenosis.

pass. The fused valve was incised on each lateral edge with a Nichols-Bailey valvulotome, which gave an excellent result. These instruments readily transform the stenotic valve to a bicuspid type valve structure. His postoperative course was complicated by chest wall oozing. It was later learned that he had had difficulty in clotting blood following a tonsillectomy during his early childhood. His preoperative bleeding and clotting time were normal, however. He received two units of fibrinogen, and was re-operated the same day to remove blood clot from the left pleural space. His recovery from that point on was very satisfactory and he has shown progressive improvement in his exercise tolerance since operation. On x-ray comparison there appears to be some diminution in the size of his right ventricle at this time, but he still presents an enormous pulmonary artery on the PA view.

In the adult patient, the operator's index finger can easily and safely be inserted through an incision in the hypertrophied right ventricular wall and the valve palpated and the stenotic orifice actually stretched by the index finger. It is the author's opinion that the Nichols-Bailey valvulotome produces a much more adequate valvular incision than that obtained with the Brock blades. Following valve incision there was a marked change and diminution in the intensity of the murmur, and he postoperatively presents no evidence of a thrill.

COARCTATION OF THE AORTA

It is generally agreed that surgery for coarctation of the aorta should if possible be undertaken around age 8 through 12. At this time, the aorta is usually elastic, pliable, and excision and primary anastomosis can be carried out in almost all instances. The 3 cases in this series were all in adults, who had the diagnosis made just a short time before actual surgery. Their clinical picture was classical for coarctation of the aorta in each case. (Table 3) All three demonstrated rib notching and absent femoral pulsations.

Case S. A. was discovered during an admission to the hospital for threatened abortion during the first trimester. The diagnosis was made for the first time by her attending obstetrician. She lost her pregnancy at that time and underwent surgery for her coarctation six months later. At operation she presented the classical coarctation with complete obstruction, about 1 cm. below the take-off of the left subclavian artery. Her aorta was easily mobilized and an excision and primary anastomosis was possible.

In the other 2 cases, a preserved aortic homograft was made available for surgery. The graft in each case was obtained locally by the author under sterile technique from a suitable young donor within six hours after death. The graft was preserved in modified Tyrode's solution which contained 100,000 units of penicillin and 1 gram of streptomycin. There was no bacterial contamination during the short period that the grafts were preserved prior to surgery. In the case of P. T., though a graft was available, it was possible to mobilize the aorta sufficiently to effect a primary anastomosis. In the latter case, there were several large aneurys-

TABLE 3
COARCTATION OF AORTA

Patient	Age	Brachial Pressure Preop.	Brachial Pressure Postop.	Symptoms	Preop. Femoral Pulse	Rib Notching
S. A. (f)	18	190/110	115/80	Headaches, leg weakness	Absent	Present
P. T. (m)	24	190/115	140/90	Numbness and weakness legs. Exertional headache	Absent	Present
J. L. (m)	24	210/110	130/90	Numbness legs. Headache	Absent	Present

mal intercostal arteries entering the aorta just below the coarcted segment. It was necessary to occlude these vessels during the resection and anastomosis. Following surgery, the patient exhibited weakness in his left leg. He required a walking stick for about four weeks, but has now returned to full use of his legs with no residual weakness.

Case J. L. had a known heart murmur since birth, but a diagnosis of coarctation of the aorta was not made until shortly before surgery, despite progressive hypertension over the previous six years. He had spent three years in the service and was discharged without the diagnosis having been made. He was told at that time that his murmur was functional and it was felt that his pressure elevation was not significant. The year prior to surgery, his pressure increased progressively and he began to have severe headaches and leg weakness. Diagnosis was made by his family physician during an examination for insurance. At surgery, he was found to have a rather long coarcted segment



Figure 2. The three reported resected segments of aortic coarctation, showing the variation in length and configuration.

measuring almost 3 centimeters, but in the classical location just below the left subclavian take-off. After resecting the coarcted segment to a degree sufficient to give him a reasonably normal aortic lumen, it was found that the aorta could not be mobilized sufficiently to effect the primary anastomosis. A 5 cm. preserved aortic homograft was inserted, using interrupted everting suture technique. The patient had a completely uneventful postoperative recovery and now has palpable femoral pulsations and a pressure in both arms of 135/90.

It is of interest that the first patient operated upon in this series, Case S. A. is now in her fourth month of pregnancy with no untoward symptoms and a persistent normal brachial pressure.

SUMMARY

The surgical treatment of many acquired and congenital diseases of the heart has within recent years been placed on a sound, safe and practicable basis. This has been the logical sequence of the remarkable refinements in diagnosis and thoracic surgical technique that have been established by the pioneers in this field.

As a result, many of these cardiac lesions have become standardized both as to diagnostic separation and surgical technique. In most cases, the diagnosis can be made on the basis of physical examination, history, fluoroscopy and EKG. Cardiac catheterization and angiocardiography may be required in the complicated cases.

The close cooperation of internist, pediatrician, thoracic surgeon, and anesthetist is vitally important. The environment of a well equipped hospital and the services of an expert radiologist and pathologist are understandably necessary. When the latter are available, cardiac surgery can be safely and successfully executed on the periphery of the "medical center".

Fourteen consecutive elective cardiac surgical procedures have been reported. These have been performed in Baton Rouge, Louisiana since November 1953. There has been one postoperative death. The remaining patients are well and improved.

DISCUSSION

Dr. Louis Levy, II. (New Orleans): I wish to congratulate Dr. Beskin on his fine presentation and the excellent results he has obtained in this most difficult type of surgery. His success with cardiac surgery in Baton Rouge attests to the excellent preoperative, operative, and postoperative facilities available in that locality.

Although the capability and experience of the

surgeon are the factors of primary importance in the success of this type of surgery, it cannot be re-emphasized too strongly that other requirements must be fulfilled in order that satisfactory surgical results with the lowest possible morbidity and mortality be obtained. These factors are: (1) proper diagnoses, (2) proper experienced anesthetic care, and (3) close postoperative attention by all medical personnel including anesthetists, surgeon, pediatrician, and internist, and by the nursing personnel, with particular attention being focused on the early signs of complications.

If the above requirements are met, then this type of surgery can be performed in any locality with results comparable to those obtained in the so-called big medical centers. The degree to which any of the above requirements are not fulfilled will, in large part, determine the morbidity and mortality rate. Even the most experienced and capable surgeon cannot compensate for a wrong preoperative diagnosis or an unnoticed postoperative atelectasis, pneumonitis, congestive failure, etc. The surgeon's task is certainly facilitated by a smooth anesthetic course, and his problems are multiplied manifoldly by a stormy anesthetic course.

The success which Dr. Beskin has had in attacking this difficult type of surgery should again be commended and reflects well on the fulfillment of the factors mentioned above.

I believe it would be in order to say a few words regarding the employment of procedures, such as cardiac catheterization, angiocardiography, arterial oxygen saturation studies, and dye dilution techniques.

Acquired cardiovascular disease amenable to surgery includes constrictive pericarditis, cardiac trauma, mitral stenosis, certain aortic valvular lesions, peripheral vascular aneurysmal and thrombotic lesions, and operations to improve coronary blood flow. Only occasionally are the procedures mentioned above of more than academic interest in acquired heart disease. An exception is the use of angiocardiography in aneurysmal and thrombotic disease of the aorta. The types of congenital heart disease in which considerable surgical experience has been obtained include coarctation of the aorta, patent ductus arteriosus, tetralogy of Fallot, pulmonary stenosis, and interatrial septal defect.

Patent ductus and coarctation of the aorta usually can be diagnosed clincially without use of complicated laboratory procedures. Occasionally, in an infant, cardiac catheterization is necessary to establish the diagnosis of patent ductus. A graft should always be available when patients with coarctations are being subjected to surgery. In the other three types of congenital heart disease, tetralogy of Fallot, pulmonary stenosis, and interatrial septal defect, cardiac catheterization should be performed prior to surgery, unless the infant's status is such that cardiac catheterization would increase the surgical risk. Of course, there is no reason why surgery cannot be performed in a locality removed from that where the diagnostic procedures are done. In fact, if an experienced capable surgeon and proper anesthesia and postoperative facilities are available, in most instances, this would be preferable, both from the patient's and the medical standpoint.

It seems to me that cardiac surgery should be relegated to those surgeons who have had adequate training and experience in this field, and should not be attempted by those who plan to attack the problem of cardiac surgery only occasionally or rarely. Only in this way will satisfactory results be obtained.

It is obvious from Dr. Beskin's excellent results that Baton Rouge represents a locality where all requirements for satisfactory cardiac surgery have been fulfilled.

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OBSERVATIONS ON ATRIAL SEPTAL DEFECT *

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NEW ORLEANS

In the Heart Station at Charity Hospital, during the past eight years, the diagnosis of atrial septal defect has been established by cardiac catheterization in 41 patients. Upon review of the clinical and hemodynamic findings in these cases several interesting observations were made. There was much in the hemodynamic data that was not predictable from clinical examination. This report deals with some of these observations.

Ages ranged from 4 months to 59 years. Twenty-nine were over 10 years of age. Thirty-six were females. Of the entire group of 41 patients studied, 12 were physically fit, or practically free of symptoms. All of these 12 were less than 30 years of age, and 5 were less than 10 years of age. One patient had been a boxer until age 30 years, and did not develop symptoms until the age of 52 years. Nine of the 41 patients, however, were severely incapacitated. This incapacity was usually associ-

* Presented at the Seventy-fifth Annual Meeting of the Louisiana State Medical Society, May 4, 1955, in New Orleans.

† From the Department of Medicine of the Louisiana State University School of Medicine and the Heart Station of Charity Hospital at New Orleans.

ated with severe dyspnea and weakness, rarely with peripheral edema or ascites.

Gestation and delivery were remarkably easy in 9 of the 12 women who became pregnant. Their course was uneventful and labor was not prolonged or difficult. Most of these patients had several children. No cesarian sections were done. Three of the patients were severe cardiacs with cyanosis and arterial unsaturation. The course of pregnancy was extremely difficult in these 3, and 1 died at the time of delivery.

CRITERIA FOR DIAGNOSIS

The murmur usually associated with atrial septal defect is a loud blowing high pitched systolic, heard best at the second or third left lateral sternal edge. There is, however, a great variation from patient to patient. It may be heard as high as the aortic area or as low as the tricuspid area. We have not encountered a patient without a murmur. In about one-third of the cases, the murmur of mitral stenosis is encountered additionally, and this has been referred to as Lutembacher syndrome. About half of the cases had a high pitched blowing diastolic murmur heard best at the pulmonic area.

Fluoroscopic examination revealed several important findings; Pulmonary vessels were large and pulsated well. Pulmonary conus was prominent. Right atrium and right ventricle were large. The left atrium and aorta were small. The left ventricle was normal but often gave a false appearance of enlargement due to posterior displacement by the enlarged right ventricle. Barium esophagram was not displaced by the left atrium.

The electrocardiogram is most helpful in establishing the diagnosis of atrial septal defect. All of our patients had either a right bundle branch block or delay, or right ventricular hypertrophy, or a combination of delay and hypertrophy. At early ages, when the R wave is normally large in V-1 and the S wave present in V-6, the ECG may be less helpful. Pragmatically, if the ECG is normal, the diagnosis is in question.

Cardiac catherization is the best clinical method of establishing the diagnosis. As the catheter is passed from the superior vena cava into the right atrium, a rise in oxygen content of the blood removed is encountered. Frequently, the catheter is actually passed through the defect to the left atrium. A careful search is made for anomalous pulmonary veins that may enter into the right atrium, and give identical oxygen data. An atrial septal defect is frequently associated with these anomalous pulmonary veins.

CORRELATION OF DATA

Correlation of the hemodynamic data obtained from catheterization with the clinical findings was surprisingly poor. There was an apparent correlation of the height of the right heart pressure with the severity of the symptoms (Fig. 1). In general, those with the highest pressures had the greatest disability. However, two of the severely incapacitated patients had rather low pressures.

There were several interesting data that failed to show any correlation with clinical and x-ray studies. The size of the

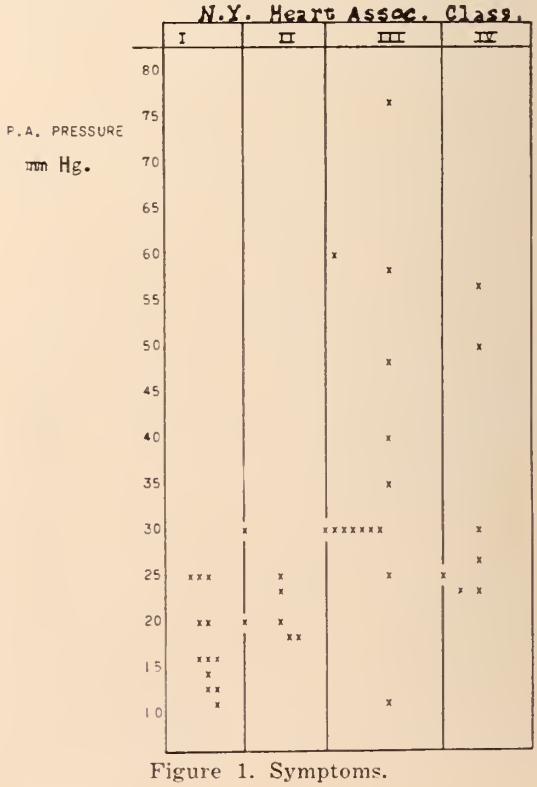


Figure 1. Symptoms.

heart bore no relationship to the pressure within its chambers. Frequently, those with the largest hearts had the lowest pressure. Inspection of the chart revealed the lack of relationship between the two (Fig. 2).

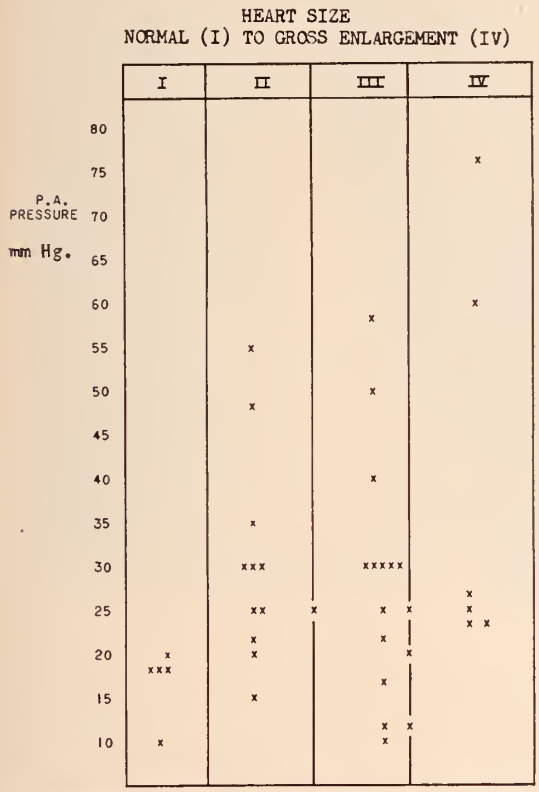


Figure 2

The size of the interatrial left to right shunt bore no relationship to the heart size. Some of the smaller hearts had the largest shunts (Fig. 3). It might have been thought that the larger heart in Figure 3 would have had the larger shunt. Catheterization studies indicated the opposite to be the case. The pulmonary vessels were usually large and pulsated vigorously. Two patients were considered to have aneurysms of the pulmonary vessels. However, the size of the pulmonary artery gave no clue as to the pressure in that vessel (Fig. 4). The Graham-Steele murmur has been attributed to pulmonary hypertension with subsequent dilatation of the pulmonary valve ring. We have frequently encountered the pulmonary diastolic murmur of Graham-Steele, but could find no relationship to the pressure in the pulmonary artery. There was equally no correlation with the quantity of blood flowing through the pulmonary artery (Fig. 5).

Engorgement of the pulmonary vessels

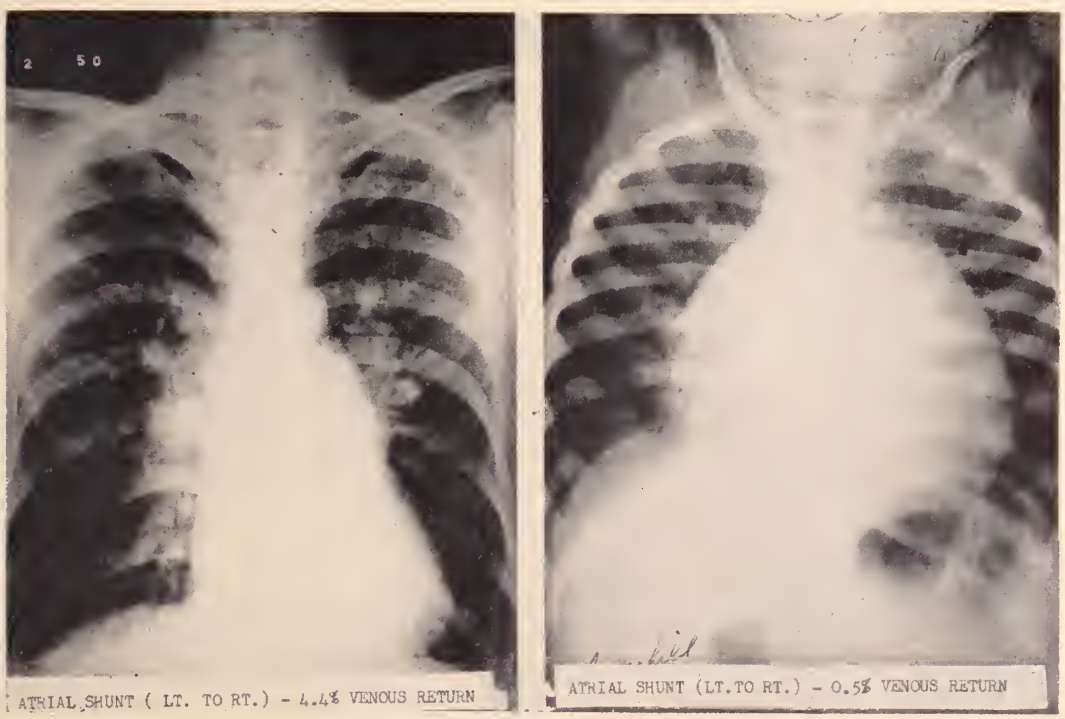


Figure 3

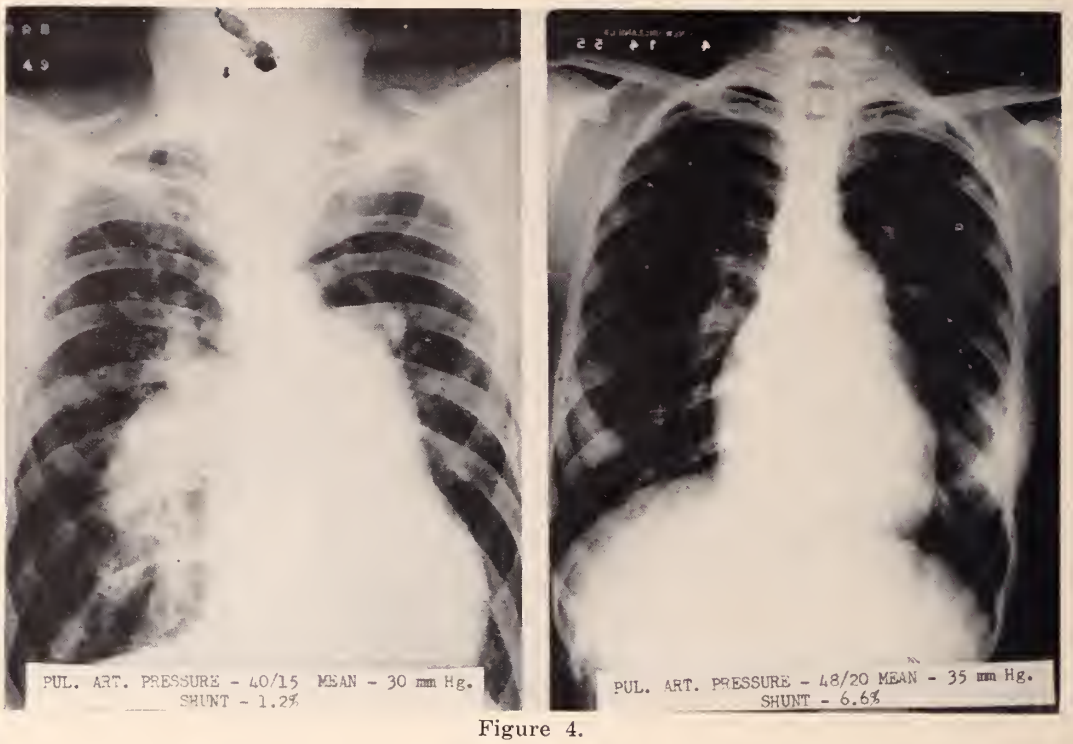


Figure 4.

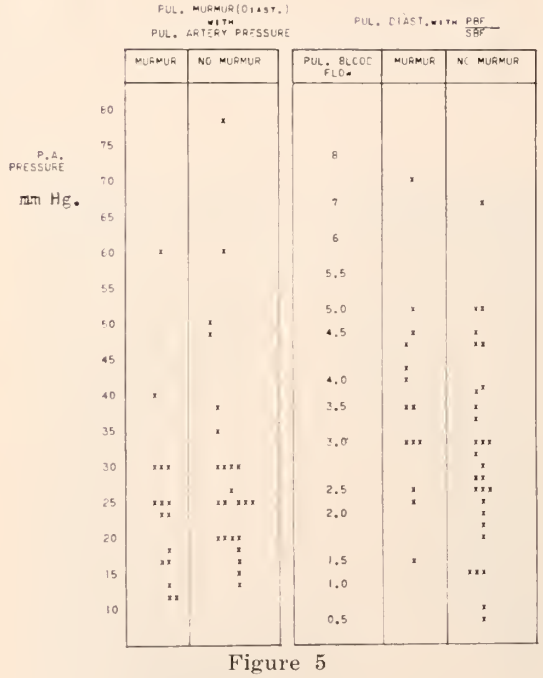


Figure 5

on x-ray is generally attributed to increased flow through these vessels. In most cases, there was a much greater pulmonary blood flow than systemic blood flow. Albeit, we could not predict relative pulmonary blood flow by x-ray studies. Actually, one of those with the severest engorgement of the lungs had hardly more pulmonary blood flow than the severely reduced systemic blood flow. (Fig 6).

The murmur of mitral stenosis was not infrequently heard in these patients. In most, we were able actually to measure the pressure in the left atrium. These with the murmur of mitral stenosis had no higher left atrial pressure than those without this murmur. Indeed, many patients with this murmur had a normal left atrial pressure (Fig. 7).

PATHOGENESIS OF CYANOSIS

By measuring the arterial oxygen saturation while the patient breathes 100 per cent oxygen, the presence of a shunting of blood from the right side of the heart to the left side without oxygenation of the lungs can be determined. The oxygen serves to increase its barometric pressure to 760 mm. mercury and negate pulmonary ventilatory factors. Unsaturation may be present only with exercise, or if severe, may be present at rest as well. There are three causes for this unsaturation:

1. Large septal defect with turbulent

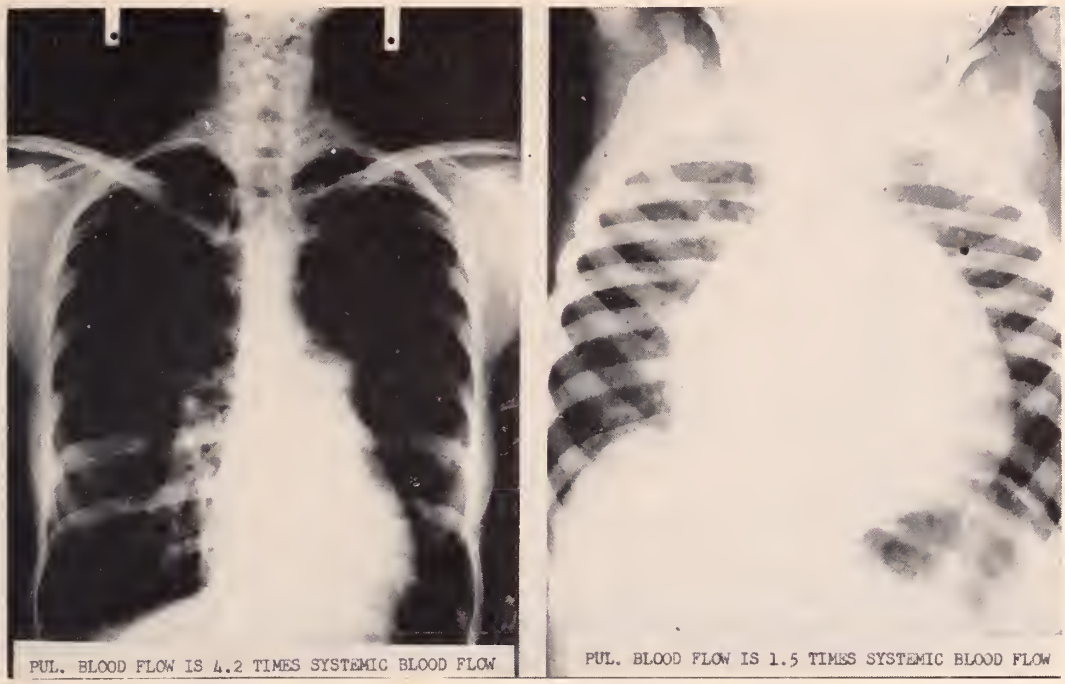


Figure 6

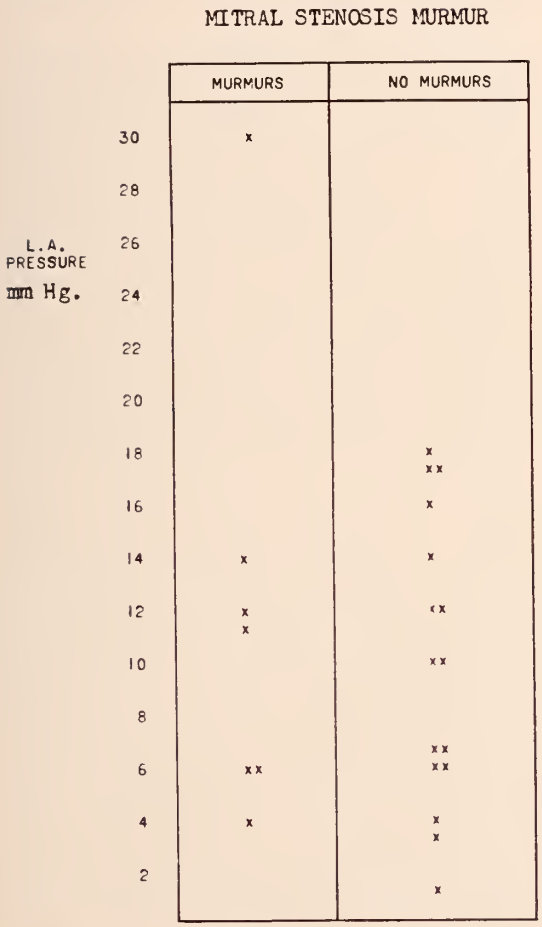


Figure 7

admixture of atrial blood.

2. Right heart failure with increased pressure in the right atrium, and reversal of the flow from right atrium to left atrium, instead of the usual left atrium to right atrium direction.

3. Pulmonary vascular damage associated with atrial septal defect.

Although one factor may be more important in a given case, all three usually contribute. Probably, the pulmonary factor is of the least importance.

Nine of the patients had this arterial unsaturation. These patients were the most severely incapacitated of the group, and presented the poorest prognosis. Indeed, 4 of these patients are already known to be dead. One patient, who had a slight arterial unsaturation during exercise, subsequently became pregnant and expired during delivery.

Surgical correction is most urgently needed in those who present arterial unsaturation. It is probable that correction should be done in all patients who present more than moderate symptoms. Among the considerations for indication for surgery, one particular caution must be ob-

served. Should the pulmonary flow be less than the systemic flow, as was illustrated in one of our patients, surgery should not be considered. In this instance, the pulmonary arteriolar disease is so severe that blood is actually shunted from the right heart through the defect to the left heart without passage through the lungs. Pulmonary hypertension here is very severe. Closure of this defect necessitates the passage of all blood from the right side of the heart to the lung before entering the left side. This results in a severe acute cor pulmonale, a fatal combination.

SUMMARY

Observations on 41 cases of proven atrial septal defect are presented. Criteria for diagnosis are presented. There is a correlation of the severity of symptoms with the height of the right heart pressure. There was no correlation of the pressures, shunts, and blood flows with fluoroscopic findings. The presence of Graham-Steele or mitral stenosis murmurs did not correlate with pressures or flows in the pulmonary artery or left atrium. Pathogensis of cyanosis is discussed, and its surgical connotation indicated.

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THE PATIENT WITH MINIMAL UROLOGIC SYMPTOMS *

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Seemingly insignificant symptoms arising from the urinary tract are often the only signs of serious genitourinary disease. Unless the physician specifically looks for and heeds these signs, serious urologic conditions can easily be overlooked.

Urologic disease can affect both young and old alike but is frequently of a more serious nature in children since their symptoms may be minimized or ignored. The two most important symptoms in children which are frequently ignored are enuresis and pyuria.

ENURESIS

Enuresis is not considered pathologic until the child reaches five or six years of age. However, it is a mistake to tell the parents of older children with enuresis that their child will outgrow this distressing symptom. Although most of these cases are psychosomatic in origin, a small number actually are due to real urinary pathologic conditions. To ignore enuresis completely is to run the risk of overlooking some major urinary condition which could cause irreversible damage if not corrected. The most important pathologic process causing enuresis is some kind of obstruction at the bladder neck, such as contracture of the internal vesical orifice, prostatic valves in the male, hypertrophy of the verumontanum in the male or posterior urethritis in either sex due to urinary infection.

PYURIA

The second most important urologic sign in children is pyuria. There should never be any pus cells in a centrifuged wet smear of a properly collected specimen of urine. A properly collected specimen is a second glass specimen in the male and a catheterized specimen in the female. Pus in the urine may or may not be accompanied by other urologic symptoms but it must be considered evidence of major urologic disease until proved otherwise by appropriate diagnostic methods.

The development of fine urologic instruments of small calibre, current refinements in diagnostic technic and administration of anesthetics make it possible to make complete urologic studies in all children, regardless of age, even newborns. We believe that all children with enuresis or pus in the urine, even a single episode of pyuria, deserve complete urologic study to rule out any major urologic problem. Complete urologic evaluation should include, of course, urinalysis, physical examination, and at least intravenous pyelography. These studies can be easily carried out by

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† From the Department of Urology, Ochsner Clinic, New Orleans.

any general practitioner who has access to an x-ray machine. More elaborate studies which sometimes are required include retrograde pyelography, cystoscopy, retrograde cystography and aortography. This last mentioned study is usually best carried out by a urologist because special equipment is necessary for correct performance.

HEMATURIA

In adults urologic symptoms sometimes can be just as subtle as those in children. Probably one of the most important of these is a single episode of either gross or microscopic hematuria. Blood in the urine is always an important diagnostic sign regardless of the amount. To attribute such an episode to passage of a small stone or simply nephritis is to act like the proverbial ostrich with his head in the sand. It is characteristic of tumors of the renal cortex to cause intermittent bouts of hematuria. As the tumor invades the pelvis, some of the smaller blood vessels are ruptured causing a shower of blood or red cells with regeneration of the pelvic epithelium over the tumor. The bleeding stops until the tumor has grown a little more and invaded a little further when it will recur. Several months may elapse between the first and second episodes of bleeding and by this time the opportunity for cure may have been completely lost. It is foolhardy to assume the cause of the bleeding without actually confirming it by accurate urinary study. All tumors of the urinary tract, whether primary or secondary, can cause blood in the urine on occasion.

FEVER

Another symptom which might be considered relatively minor is fever of unknown origin. All patients with such fever should have urologic study not only to determine whether the fever is due to urinary infection but also to rule out renal tumors. Patients with large renal tumors characteristically have a low grade fever probably as the result of necrosis and absorption of portions of the tumor.

HYDRONEPHROSIS

One of the more common types of renal disease is hydronephrosis. It is caused by partial obstruction to the flow of urine from one or both kidneys and is generally of rather insidious onset. Once it has become fully developed, however, it usually produces severe symptoms which leave no doubt as to the correct diagnosis, although a few patients have only minor urinary symptoms or none at all. For example, the patient may complain of a dull ache in one flank, which may be diagnosed as a muscle strain, prostatitis or some other minor disease. Other patients with this lesion do not have any urinary symptoms at all but have complaints referable to the gastrointestinal tract, such as epigastric discomfort associated with eating, or pain in the right upper abdominal quadrant frequently characteristic of or simulating gallbladder disease. We have seen several patients who have undergone several major abdominal explorations and removal of various organs before any one thought of the urinary tract as the possible source of the primary symptom. Not uncommonly patients with these types of symptoms will have a severely damaged kidney by the time the correct diagnosis is made and they will lose this kidney. Ideally, of course, an attempt should be made to conserve as much renal tissue as possible rather than allow it to be destroyed by failure to make the correct diagnosis.

CARCINOMA OF PROSTATE

In recent years the medical profession and the public in general have become much more aware of the problem of carcinoma of the prostate. The number of cases of early prostatic carcinoma which we see are still extremely small compared with the total number of cases which the average urologist sees. Successful treatment of this disease is not necessarily a urologic problem but is the concern of the entire medical profession, and particularly the general practitioner, who sees the patient frequently and has the opportunity of discovering small hard nodules in the prostate long before the urologist might. One of my professors once told me that he could find more pathologic conditions

with his index finger in the rectum than he could with his stethoscope. The patient with early carcinoma of the prostate, that is, one that can be cured by radical perineal prostatectomy, has no urologic symptoms at all. Symptoms appear only after the lesion has spread beyond the capsule of the prostate or the tumor has become large enough to obstruct the neck of the bladder. Frequently, one of the first symptoms of carcinoma of the prostate is mild backache produced by metastatic disease in the spine, and again the diagnosis is confirmed by inserting the index finger in the rectum. Although the disease is not amenable to cure in this stage, both the tumor and the pain can be controlled with female sex hormones or with orchiectomy.

It is entirely possible for a man to have few urologic symptoms despite a large decompensated bladder with considerable residual urine and severe renal damage from back pressure. He may be urinating only three or four times a day, seldom getting up at night and complaining only of a small weak stream. This is another indication of far more serious disease than the urologic symptoms would suggest. In men 50 years of age or older whose urinary habits have gradually changed it is prudent from time to time not only to palpate the prostate rectally but also to determine whether there is any residual urine. An outstanding case of this type was a man first seen three years ago whose presenting complaint was weakness, which was subsequently found to be due to rather severe anemia secondary to bilateral chronic pyelonephritis, which in turn was due to 4000 cc. of residual urine with back pressure and atrophy of both kidneys. He insisted that he urinated normally except that his urinary stream was smaller than it once was. It was interesting to note that in this particular patient the blood urea nitrogen on admission to the hospital was 90 mg. per cent. It required almost a year before his condition was finally corrected, although even now his renal function is far from normal, but he is at least emptying his bladder as a result of transurethral resection which was performed after a prolonged period of urinary drainage. This patient was sent to me by an alert internist who thought that there must be some explanation for the severe anemia in the absence of obvious hemorrhage.

CONCLUSION

In conclusion, let me repeat again that patients with urinary symptoms which seem to be relatively innocuous do not always have minor lesions. Pathologic alterations in the urinary tract, in particular, frequently cause few or no symptoms until rather late and unless this is kept in mind during routine examination of patients, such conditions might be overlooked. There is nothing more tragic than a small child with both kidneys completely destroyed, either by infection or by obstruction to the flow of urine, which could easily have been detected if his "minor" symptoms had been properly interpreted.

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ROUTINE PHOTORADIOGRAPHY OF THE CHEST; ITS VALUE TO THE PRACTICING PHYSICIAN *

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Photofluorography is the process of photographing a fluorescent image of the chest on a film of reduced size, using a special camera. Bleyer,[1] in 1896, was the first to apply it only six months after discovery of the x-ray by Roentgen. It is familiar to all physicians and many lay persons today, 20,000,000 persons having submitted to this method of examination in World War II. Within the past two decades, it has been used increasingly in general hospitals on patients entering for any type of medical service. When used in this fashion, photofluorography is of

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tremendous service to the practitioner. Many physicians, not appreciating its value, look upon it as a research tool or as something beyond the reach of the average hospital. In an effort to demonstrate what such a system can achieve for a general hospital, results of operation at the Charity Hospital of Louisiana are briefly stated.

In the past ten years, approximately 590,000 seventy millimeter films have been exposed at the Charity Hospital X-Ray Unit. With the exception of those too sick to stand, all patients admitted to the institution and all outpatients have had the benefit of photofluorographic studies. The results have been most illuminating. Of these patients 3.42 per cent have been found to have pulmonary lesions strongly suggesting tuberculosis; 3.06 per cent were found to have significant cardiovascular disorders while 2.67 per cent displayed nontuberculous disease of the lungs. Thus, 9.15 per cent or nearly 1 in 10 patients had some demonstrable disease of the heart or lungs, usually not suspected when the patient first reported to the hospital.

I. TUBERCULOSIS

The practitioner obviously wants to know whether his patient has tuberculosis of the lungs in any phase of its evolution. Phthisis may progress as long as two years without producing any symptoms; some patients may intentionally or unintentionally fail to report symptoms of pulmonary disease when being treated for some other illness; therefore, nothing less than routine chest x-ray examination will uncover such lesions. The public has come to accept chest x-ray examinations as customary; good medical practice to-day dictates that it be part of each general medical examination. It is to be emphasized, of course, that the photofluorogram does nothing more than the standard 14 by 17 inch film in this respect: it renders visible a pulmonary lesion but does not determine immediately the cause, activity or prognosis. Other methods of physical and laboratory investigation are needed for this. The photofluorogram does very quickly, efficiently, and economically show a lesion where least suspected as in the following case:

J. M., 35 year old white female, was admitted with a diagnosis of intestinal obstruction. Routine photofluorography demonstrated bilateral cavitary pulmonary disease; further studies made possible a diagnosis of tuberculous enterocolitis complicating far advanced pulmonary tuberculosis. Antibiotic therapy accomplished inactivation of the pulmonary disease as well as relief of the intestinal symptoms.

II. CARDIOVASCULAR DISEASES

The exact proportions of persons entering a general hospital with previously undetected cardiovascular disease is still unknown. In a small series of those studied at the Charity Hospital [2] it was estimated that 4 of each 1,000 patients had cardiac disease suspected neither by them or by the original physician. Approximately eight times this number (3.06 per cent) were determined to have cardiovascular disease of some type although most of them knew of its presence. It should be recalled that many of these persons had been brought to the hospital for complaints unrelated to the circulatory apparatus. Without routine photofluorography, many of them would have submitted to various operative procedures before their ability to withstand such strains had been properly evaluated. The photofluorogram, like the standard 14 by 17 inch film, often fails to diagnose cardiovascular disease before there is significant alteration of the cardiac silhouette or before other demonstrable abnormalities appear. It is therefore not as good a "screening" device for cardiac disease as it is for pulmonary lesions; yet it does bring to light a certain number of circulatory impediments which might not otherwise be considered during the course of the medical service for which the patient came to the hospital originally.

III. NONTUBERCULOUS PULMONARY DISEASE

Contrary to popular belief, many nontuberculous affections of the lungs may not produce material evidence of illness until far advanced. Many a patient has reported for some entirely unrelated complaint only to be found by routine photo-

fluorographic study to have an intrapulmonary disease threatening life. To catalog the bewildering array of such conditions would be almost a hopeless task. Pulmonary emphysema, that common disturber of the health of our aging males, has been particularly frequently encountered; tumors of the lungs in adults and children; histoplasmosis, pneumonia, and cystic disease are at times tolerated by the patient with astonishingly few symptoms. Over and over, the lesson has been taught that the symptoms of intrathoracic disease may be few and delayed in appearance; physical examination may be disappointing. Only the routine liberal application of radiography of all patients coming to a general hospital will make it possible that these abnormalities are found early enough to permit radical and lasting improvements.

IV. MISCELLANEOUS CONDITIONS

Often extrathoracic disease may encroach on the thorax and first be noted on the routine film of the chest. Thyroid enlargements, esophageal diverticula, diaphragmatic herniae, chest wall tumors, rib and bone destruction may thus be diagnosed. It is instructive to ponder the number of diagnoses made by a careful study of the roentgenogram.

V. STIMULUS TO THE EARLY DIAGNOSIS OF INTRATHORACIC DISEASE

When a large volume of photofluorograms is taken, the cost per film exposed is quite low. Although few places are equipped to take photofluorograms at the Charity Hospital rate of 31 cents,[3] most places can render this service fairly cheaply. The practitioner who becomes accustomed to the enormous amount of information presented by the routine photofluorogram, soon learns to expect such service generally and he can obtain it. Almost any general hospital, regardless of its size, can operate such a unit economically. If the volume of persons examined is not large enough or if special circumstances dictate a different approach, the practitioner can obtain the same degree of assistance in diagnosis—albeit at a greater cost to his patients—by insisting that each new patient and each hospital admission have a conventional 14 by 17 film of the chest. Statistical analyses have repeatedly shown that the individual interpretation of the film is the all-important factor and that the medium used (35 mm.. 70 mm., 4 by 5 inch or 14 by 17 inch film) is distinctly of lesser importance.

SUMMARY AND CONCLUSIONS

Photofluorography of the chest performed routinely is of value to the practitioner in several respects: it permits him to make an earlier diagnosis of intrathoracic disease (whether cardiovascular, tuberculous or nontuberculous) and to single out for further examinations those patients needing such studies. It is economical, quick, and effective, and it is accepted by the lay public. When applied as a routine to all patients entering general hospitals for any type of medical service, it sharply minimizes the number of undiagnosed intrathoracic disorders and markedly enhances the quality of medical care given.

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GALL BLADDER SURGERY: A COMPARATIVE STUDY *

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INTRODUCTION

The purpose of this paper is to consider the status of gall bladder surgery in our community. In order to do this we have reviewed the current literature, summarized the present day thought on the management of gall bladder disease, and then compared a group of cases done locally in two private institutions. In our community we have two private hospitals totaling approximately 450 beds. The charity institution for this area is in a

* Presented at the Seventy-fifth Annual Meeting of the Louisiana State Medical Society, New Orleans, May 4, 1955.

nearby city. Consequently, all of the patients admitted are private patients treated by private physicians except when emergency indicates otherwise. We have reviewed 450 cases done by a number of surgeons. Some of the surgeons are surgical specialists and others are general practitioners.

HISTORICAL

Gall stones have been recognized as a clinical entity for several hundred years. Robinson quotes a publication by Beneverius dated 1506 on gall stones. Jaundice, caused by common duct stones, was described by Michael Ettmüller 246 years ago; the common bile duct was first explored by Mossey of England in 1882. Langenbock and Kümmel introduced the operation in Germany in 1884. The first successful operation for common duct stones was performed by Knowsley-Thornton in 1889. Transduodenal approach for ampullary stones was carried out by Charles McBurney in 1891.

INCIDENCE

Cholecystectomy is one of the most frequent major surgical procedures. The incidence of gall stones among adults over thirty years of age has been variously estimated as from 10 to 20 per cent. It occurs approximately 2 to 1 in females as compared to males. In our local cases the ratio was 4 to 1. Furthermore, in our cases it occurred comparatively infrequently in colored females as compared to white females and much less frequently in colored males. The relative number of admissions may explain this partly; and, also, it may be that the lower income group does not seek medical aid except for acute symptoms.

Biliary tract disease is the most common condition requiring surgery in the elderly patient. In 1000 routine postmortems, Krump found gall stones in approximately 50 per cent of the 60 to 80 age group. In Adams' and Stranahan's report of an analysis of over 1000 cases from Leahy Clinic, 75.2 per cent occurred between the ages of 31 and 60. In our series, 71.1 per cent of our patients were in this age group.

THE DIAGNOSIS

This, of necessity, must be divided into acute cholecystitis and chronic cholecystitis with cholelithiasis. In our group 42 (9.0 per cent) cases had acutely inflamed gall bladders and of these 89 per cent had stones. In most cases, acute cholecystitis is a complication of the former. In acute cholecystitis the usual initiating factor for the process is impaction of a stone in the cystic duct. In some patients with acute cholecystitis the initial attack is when the patient is first seen. It may be well to consider the diagnosis of acute cholecystitis first and dispense with it as it differs considerably from chronic cholecystitis. Frequently one is able to secure a long history of gall bladder disease for which surgery was refused or not advised. The signs and symptoms vary a great deal. Pain is usually in the right upper quadrant and may have originated as a diffuse epigastric discomfort. Fever varies from normal to 103 F., sometimes higher. The important signs in the cases we have seen are the local findings of marked tenderness in the gall bladder area with muscle guarding and the presence of a tender, tense mass sliding below the costal margin. The WBC varies, but usually shows an increase of 10 to 20,000 with polymorphonuclear leukocytosis. There may or may not be a history of jaundice or nausea and vomiting. The symptoms are sometimes not as severe as the local and operative findings very often indicate. From symptoms, physical examination or laboratory findings, it is difficult to estimate the exact nature of the pathology — namely, whether the gall bladder is gangrenous or whether perforation is impending.

The ideal management of acute cholecystitis is early operation with removal of the gall bladder and exploration of the common bile duct as indicated. In about half of the cases, because of delayed hospitalization, difficulty in making the diagnosis and poor general condition of the patient, this becomes too dangerous. Under these circumstances one is faced with

the choice of conservative treatment with its attendant dangers, or a two stage procedure consisting of emergency cholecystostomy followed by an elective cholecystectomy in approximately one month. Although this time limit apparently is ideal and has been suggested by many authors including Dunphy and Ross, and Ochsner, De Camp, et al, one must remember that the inflammatory process in acute cholecystitis begins as a purely chemical one and that the invasive infection is superimposed after approximately forty-eight to seventy-two hours. With the use of antibiotics it is possible to operate upon these patients at a later hour and still accomplish the desired results. One must be sure that the acute process is subsiding before he elects to treat acute cholecystitis conservatively and defer operation. In this series of 42 cases of acute cholecystitis, cholecystostomy was performed in six (14.2 per cent). This procedure was reserved for the critically ill patients or those in whom the local findings made cholecystectomy hazardous. In the entire 42 cases one death occurred, making a mortality rate of 2.4 per cent.

To return to the diagnosis of chronic cholecystitis and cholelithiasis, a careful history is very important, although dyspepsia or the so called "windy indigestion" may be caused by other conditions such as peptic ulcer, hiatal hernia, cardiac disease or irritable colon. Pain is the most important symptom. Littler and Ellis point out that it very often has a nocturnal frequency. In Adams and Stranahan's cases, pain again was the leading symptom occurring in over 90 per cent of their cases. Nausea and vomiting is the next most common symptom occurring in some 65 per cent of Littler and Ellis' cases. The history of jaundice occurs in some 18 per cent of cases. Cholelithiasis can most often be confirmed by x-ray. In 1924, Graham and Cole did the first cholecystogram. Today, with the newer iodine preparations such as Telepaque, a positive diagnosis of cholelithiasis can be predicted in some 95 per cent of cases. Only acute or advanced chronic liver disease will interfere with the tests. The test is also probably worthless in the presence of jaundice. Only some 10 per cent of gall stones are radiopaque on routine x-ray study, but by cholecystography approximately 70 per cent of the stones can be visualized. When one adds the gall bladders that do not visualize the percentage becomes quite high in which a correct diagnosis of cholelithiasis can be made. In the Lahey Clinic series the correct diagnosis was stated to have been made in 97.6 per cent of the patients examined by x-ray. In 21.6 per cent, a diagnosis of nonfunctioning gall bladder was made, and in all of these cases stones were found at operation.

Of the 450 cases in our series, 329 had the x-ray findings recorded on the hospital record. Of these, in 238 (72 per cent) stones were visualized preoperatively. In 69 (21 per cent) there was nonvisualization and, of these, stones were found at operation in 63. In 17 (5 per cent) there was poor visualization, and of these there were seven in which stones were found at surgery. In five in which there was normal visualization, no stones were found in any at surgery.

INDICATION FOR OPERATION

Once the diagnosis of chronic cholecystitis with cholelithiasis has been substantiated, one is justified in recommending surgery unless some strong contraindication to operation exists, as the morbidity and mortality are less from operation than from possible complication of calculi of the biliary tract. If the patient wishes to put up with indigestion and pain, that is his choice. However, the impelling reasons for recommending cholecystectomy are to avoid serious complications such as (1) common duct stone, (2) potential hazards of attacks of acute cholecystitis, (3) development of a cholecysto-enteric fistula with or without gall stone intestinal obstruction, and (4) patients with long standing gall bladder disease usually develop cholangitis, pancreatitis and hepatitis. In all of the above conditions, the mortality is increased. A further indica-

tion is that some 2 per cent to 4 per cent of the gall bladders which show x-ray evidence of gall stones will also contain a malignancy. The curability rate of carcinoma of the gall bladder is reportedly 2.5 per cent. In our experience we have seen only one carcinoma of the gall bladder operated upon with any hope for cure. All other carcinomas of the gall bladder were beyond cure. The percentage of tumors in the gall bladder vary considerably in different institutions; however, they are almost always associated with stones. In the Leahy Clinic series only four tumors were found in 1036 cholecystectomies making the incidence in this series 0.3 per cent.

This brings us to the problem of the silent gall stones. Should the silent gall stones be removed? Today, so many patients with G. I. symptoms are admitted to the hospital for x-ray work-up (because their insurance policies dictate). Cholecystogram is one part of that work-up. When stones in the gall bladder are noted, are we obligated to recommend surgery in all cases? Most surgeons will agree that surgery is indicated on the basis of avoiding serious complications as mentioned previously. Comfort et al in the study of a ten to twenty year follow-up of 112 cases of silent gall stones found that 51 or 45.5 per cent developed symptoms. Of the 51, surgery was done on 24 with 3 deaths resulting in 12.5 per cent mortality. Twenty-eight patients died of causes unrelated to gall bladder disease. Of the 51 developing symptoms, 16 developed colic, 30 indigestion, 5 jaundice and colic. In summary, therefore, the indication for cholecystectomy with the presence of cholelithiasis is to prevent these serious complications of acute cholecystitis, common bile duct stone, etc.

In a study of biliary tract surgery in the aged patient, Strohl and Diffenbaugh found that biliary tract disease was the most common condition requiring surgery in the elderly patient. Acute cholecystitis was present in 1 of every 4 patients with cholecystitis, and common duct stones twice as frequent. Common duct exploration further adds to the risk of surgery in aged patients. The mortality rate was 9.3 per cent. Age is not a contraindication to biliary tract surgery. Surgery should be done before serious complications develop. The large solitary stone is the most common offender causing acute cholecystitis as it drops down and blocks off the cystic duct.

COMMON DUCT EXPLORATION

We have used the following indications in our decision as to when the common duct should be explored at the time of cholecystectomy: (1) Palpable stone in the common duct; (2) dilation or thickening of the common duct; (3) small stones in the gall bladder; (4) dilated cystic duct; (5) history of colic or jaundice, or jaundice with chills and fever. The presence of jaundice indicates common bile duct stone in about 50 per cent of cases; in the other 50 per cent it is due to cholangitis or hepatitis. It should also be pointed out that about 50 per cent of patients with stones in the common bile duct do not have jaundice. In a report from the Mayo Clinic of the biliary surgery for 1953, of 1093 patients operated upon for chronic cholecystitis, the common bile duct was explored in 286 cases; and in this number, stones were found in 123 of the cases. In 1000 routine autopsies, biliary duct stones were found in 24 per cent of the bodies with chronic cholecystitis. In the Lahey Clinic cases as reported by Adams and Stranahan, 45.7 per cent of the cases were explored and 36.9 per cent of the ducts explored contained stones. In our local cases, 21.3 per cent of the cholecystectomies had choledochotomy, and of this number stones were found in 26 per cent. Many times the surgeon will say, "no stones are palpated in the common bile duct and the bile duct does not appear dilated and is therefore not explored". External inspection and palpation of the common bile duct to detect stones are highly unreliable. We do not feel that the common bile duct was explored in all indicated cases

in the number that we have reviewed. However, the addition of choledochotomy to the operative procedure, in the hands of the occasional operator, will certainly increase the hazard of the operation to the patient. Before making any recommendations, one must weigh this hazard against the state of conditions when a common duct stone is left behind.

The standard method of choledochotomy and closure over a T-tube with biliary drainage works well in most cases; however, there are times when it is necessary to do a transduodenal exploration of the common bile duct. This is especially true when a stone can be felt in the distal one-third or the retroduodenal portion of the common bile duct. Preston states that according to Zollinger, autopsy statistics reveal that duct stones are overlooked at operation in about one-third of the cases. When one does not feel entirely pleased with the result of the exploration by the standard method he should use a transduodenal approach, especially if there is any question of a lesion of the ampulla of Vater. Landry and Walters reported 5 cases in which very small ulcerating malignant lesions were demonstrated in the ampulla of Vater in this fashion.

THE HAZARDS OF GALL BLADDER SURGERY

The three great hazards of gall bladder surgery are hemorrhage, common duct injury, and hepatic artery injury. "Most strictures of the biliary passages following cholecystectomy are due to poor exposure, consequent upon poor anesthesia, inadequate or badly placed incision, over-confidence, haste, hemorrhage, or a lack of anatomical knowledge on the part of the surgeon."[6] If one is careful to identify the cystic artery and ligate it separately, and dissects the cystic duct at its entrance into the common bile duct, and identifies the hepatic ducts before ligating the cystic duct, he will avoid many injuries. The common injuries that occur are due to grasping blindly into a pool of blood with a hemostat when the cystic artery is torn, or to improper identification of vital structures. In this way one can injure the hepatic or common duct, the portal vein or the hepatic artery. Injuries to the hepatic artery or its branches lead to liver necrosis and death. The common duct injuries can be many but can usually be blamed upon inadequate dissection and identification of the anatomical structures. Once a calamity with the common bile duct occurs and is recognized, it is best to insert a tube into the duct and await another day if the operator does not feel capable of the task.

In the fair risk patient, common duct exploration should not add appreciably to the operative risk, if careful attention is given to minor details of operative and postoperative care. In the period of 1953 at the Mayo Clinic, in which cholecystectomy for benign lesions in 1125 cases was done, there was a 0.5 per cent mortality rate. In 179 cases in which there was choledocholithiasis, the mortality rate was 1.1 per cent. The Lahey Clinic series reported 0.9 per cent. The local mortality rate was 2.2 per cent. The mortality rate reported from most of the large clinics over the country for cholecystectomy alone is less than 1 per cent.

The causes of death when examined in the Mayo Clinic series were cardiac or vascular almost without exception. In our series there were 11 deaths or 2.4 per cent of the total. The causes of death in these cases can be listed as follows: hepatic failure—4, intestinal obstruction—3, lower nephron syndrome — 2, pulmonary embolus—1, and cardiac arrest—1. With more careful preoperative preparation and postoperative care the mortality from liver failure, lower nephron syndrome, and intestinal obstruction might be decreased. With the early diagnosis of postoperative intestinal obstruction and the early correction thereof, this cause of mortality could be reduced. It is urged that a study of the causes of death always be made in any local survey. It is in this way that the mortality rate can be appreciably lowered.

Aside from the morbidity and mortality already discussed there are a number of

poor results following cholecystectomy for cholelithiasis. In a study of the significance of the postoperative symptoms, Whitehouse has placed these bad result patients in three groups: (1) failure to make a complete diagnosis such as associated peptic ulcer, cardiac disease, etc.; (2) technical reasons, namely, common duct stone being left behind, long cystic duct remnant and strictures of the biliary duct; and (3) dyskinesia of the sphincter of Oddi or pyloric spasm. In another study of the postcholecystectomy syndrome, Hume and Buckston have reported seven cases which they have operated upon and recovered cystic duct stumps which were found to be fibrous and upon excision and examination they contained amputation neuromas. All seven patients were asymptomatic during a long follow-up.

SUMMARY

A survey of 450 cases of cholecystectomies done in two private hospitals is presented. Cholelithiasis was present in 90 per cent of these. Choledochostomy was performed in 96 (21.3 per cent), and stones were found in the common bile duct in 25 (26 per cent) of these.

Cholecystectomy should be advised in all cases of cholelithiasis as the morbidity and mortality rates are less from the operation than from the possible complications.

In acute cholecystitis surgery is advised if seen within three to four days from onset of disease. If seen after this, conservative treatment is recommended unless progression of symptoms and findings is noted, and then cholecystostomy may be necessary. Cholecystectomy should be done four to five weeks after subsidence of the acute cholecystitis. Cholecystostomy is reserved for the critically ill patients or where local findings make cholecystectomy hazardous.

The indications for choledochostomy are presence of jaundice, palpable stones in the common bile duct, dilated or thickened bile duct, small stones in the gall bladder, history of severe colic or jaundice with chills and fever, and dilated cystic duct.

In gall bladder surgery, proficient surgical technique, adequate exposure, good light, and anatomical identification of vital structures are essential in preventing surgical accidents.

In the elderly or jaundiced patient, preoperative preparation and postoperative care should be done meticulously.

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TRAUMATIC HYPHEMA *

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Hyphema occurs with more frequency than is emphasized by the standard textbooks on ophthalmic disease, especially in blunt injury to the eye. Traumatic hyphema should be amplified because of the

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potential seriousness of the condition. Many eyes can be saved by adequate and timely therapy. General practitioners and physicians with an industrial practice should realize that these injuries are important and should be searched for, even in the face of more serious injuries.

PRESENT SERIES

This group of 146 cases of traumatic hyphema was seen at Charity Hospital in a five year period. All cases occuring in this period were not included—only those in which the records were adequate for this review.

TABLE 1
ETIOLOGY

Article	No. Cases
Bee Bee	26
Rock	26
Stick	16
Unknown	7
Seashell	3
Shoe	3
Rope	3
Mud	3
Rifle part	2
Bullet wound	2
Blunt injury	2
Top	2
Beet	2
Bottle	2
Baseball	2
Nail	2
Toy pistol blow	2
Wood	1
Picture frame	1
Doorspring	1
Torpedo	1
Corn cob	1
Soap	1
Fist	1
Arrow	1
Ice cube	1
Rubber band	1
Orange	1
Club	1
Metal pipe	1
Rubber sheet	1
China berry	1
Kick	1
Flower pot	1
Sawdust	1
Penny	1
Hanger	1
Cucumber	1
Chain	1
Tree branch	1
Potato	1
Wrench	1
Toy pistol shot	1

Table 1 indicates the varied assortment of objects which caused injury. The most common projectile, beside the more ordinary missiles, is the air gun propelled "BB" pellet. It heads the list in other series. Adequate legislation should outlaw this unnecessary toy.

There were 127 (87 per cent) male cases in this group and 19 (13 per cent) female—an indication that it usually occurs in the more vigorous sex. Forty-four (30 per cent) of the cases involved the Caucasian race and 102 (70 per cent) were in the Negro race. These latter percentages may not reflect ordinary conditions, as all cases were treated in a charity institution.

It is interesting to note that there are usually two types of cases seen: youngsters hurt at play, and older persons involved in an altercation. The youngest case occurred in a 1 year old and the oldest, 60 years, with an average of 15.9 years.

Cases were divided into two types: partial hyphema, (114 or 79 per cent), where the anterior chamber is partially filled, and complete hyphema (27 or 18 per cent) in which the anterior chamber is completely full of blood. Five cases of unspecified type were included because of their interest. This is also a convenient way to divide cases for therapeutic and prognostic reasons, as will be brought out later.

There was no preponderance of unilaterality and, of course, no reason for it. No case was involved bilaterally, but the right eye was injured in 75 cases (51.8 per cent), and the left eye in 71 cases, (48.2 per cent).

Hyphema lasted for an average of 9.7 days, with a range of two days to six months. These figures include time after the accident, before, and during hospitalization.

The average length of hospitalization was 8.64 days, with a range of 1 to 31 days. Readmissions for further therapy

were not included in these figures—only the primary hospitalization.

Cases were followed for an average of 147 days. Some were not seen at all after discharge from the hospital, but others were followed for as long as three years after their original injury. Enucleation cut short this period in 7 patients.

COMPLICATIONS

All complications are recorded in Table 2. About one-third of these patients suffered no complication of their blow or hyphema. Traumatic iritis was described in only 17.8 per cent of this group. Such a low figure, I believe, is due to lack of examination. All cases should exhibit signs of traumatic iritis. The same may be said of traumatic mydriasis. Although actual mydriasis may not be seen, some degree of sphincter paralysis is usually present. Vitreous hemorrhage was seen especially in older individuals and/or those with severe trauma. It resorbed surprisingly well in children, especially if it were not too massive. Secondary glaucoma followed mostly in those cases with complete hyphema and those with vitreous hemorrhage.

TABLE 2

Complications	No. Cases	Percent
None	51	34.9
Traumatic iritis	26	17.8
Secondary glaucoma	21	14.4
Recurrent hemorrhage	16	10.9
Vitreous hemorrhage	15	10.3
Traumatic cataract	11	7.5
Corneal staining	10	6.8
Traumatic mydriasis	9	6.2
Iridodialysis	8	5.5
Dislocated lens	4	2.7
Lid laceration	4	2.7
Corneal leucoma	4	2.7
Retinal hemorrhage	3	2.1
Phthisis	3	2.1
Pupillary membrane	2	1.4
Scleral rupture	2	1.4
Rupture of lens	2	1.4
Commotio retinae	2	1.4
Corneal abrasion	2	1.4
Macular degeneration	2	1.4
Fracture maxilla	2	1.4
Descemetitis	1	0.7
Limbal staphyloma	1	0.7
Proptosis and antral wound	1	0.7
Iris atrophy	1	0.7
Retinal tear	1	0.7
Lues	1	0.7
Organization of AC & Cornea	1	0.7
Anisocoria	1	0.7
Retinal detachment	1	0.7
Foreign body limbus	1	0.7
Tear of choroid	1	0.7
Conjunctival laceration	1	0.7

Secondary, or recurrent hyphema, is the complication most feared in an otherwise uneventful case. It was present in 10.9 per cent of this series. Hemorrhages recurred up to three times, and still a cure of the hyphema was obtained. This is not the usual situation, as recurrent bleeding often leads to complete filling of the anterior chamber and subsequent loss of the eye, due to secondary glaucoma, blood staining of the cornea, or surgical complications. Table 3 records the age and time that secondary hyphema occurred in relation to the injury and in relation to the paracentesis (if done) in 14 cases of secondary hyphema that occurred in this series. It will be noted that secondary hemorrhage developed, on the average, much later in these cases than in others in the literature. Thygeson and Beard [10] stated that the second and third post-traumatic days are those most to be feared. Secondary hyphema was seen at an average of 5.7 days after the injury in the cases being recorded, and occurred on the second day after paracentesis in both cases in this series where it developed. Nearly half of the recurrent hem-

TABLE 3

Case No.	Age	Secondary Hyphema Occured Days After Injury	Secondary Hyphema Occured Days After Paracentesis
2	9	2	–
8	8	2	–
7	8	3	–
13	10	3	–
5	5	3	–
1	9	4 & 10	–
6	6	4	–
10	2	4 to 7	–
15	8	6	–
12	9	6	–
4	55	7	–
14	13	7	2
9	9	9	–
11	11	14	2

orrhages in their series occurred in persons older than 13 years; whereas all but one case in the present series were 13 years old or younger.

No correlation of secondary hyphema to blood pressure, diabetes, blood clotting mechanism deficiencies, or drugs used, was made in this present group of cases.

Corneal staining was found in 10 cases, (6.8 per cent), and was evident, predominantly in those persons suffering a complete hyphema and glaucoma. Such a stain is dense at first, resorbing in months or years from the limbus toward the center. Simultaneously, the whole remaining stained area loses its denseness. Usually, vision does not return after this resorption because of other injuries. Retinal lesions, such as commotio retinae and simple hemorrhages were noted only in a small percentage of these cases, probably because a search for them was not made, rather than because of their absence. Many of these patients were children who put up such a struggle that it was unwise to attempt examination. In others, the hyphema and/or other complications, interfered with posterior segment examination.

THERAPY

The therapy used most often in this series was absolute bed rest, with the patient flat on the back or turned gently on the uninvolved side. Children and apprehensive adults should be well sedated to attain this end. Some children, who are uncooperative, should be restrained hand and foot. As Thygeson and Beard noted, however, excellent final results were obtained in many uncooperative patients, whereas, poor results were seen in those patients who were most obliging.

A bilateral ocular bandage was frequently used in these cases. Its purpose was twofold: to afford protection of the affected eye and to produce temporary amblyopia, so that the patient would not be tempted to strain and move himself, (and his eyes), around to observe activity in his surroundings.

Atropine was used in 81 per cent of the present series. The classical discussion of whether to use atropine or pilocarpine now is in order. The proponents of pilocarpine therapy say that the hyphema absorbs easier because there is more iris surface to effect absorption. Cordes and Horner also claim that it should be used with secondary glaucoma of hyphema. I believe that in secondary glaucoma of hyphema, the glaucoma is due to a massive anterior, or vitreous hemorrhage, which should be handled surgically, and use of miotics has no place in such therapy. The proponents of atropine say that the eye should be put at rest to allay secondary hemorrhage and to decrease traumatic iritis. This is reasonable, especially as Thygeson and Beard have demonstrated the frequent occurrence of ciliary body damage. However, Fralick claims that atropine used early, will produce vascular stasis, tissue engorgement, and edema in the anterior uvea. Such edema and engorgement, as is produced by trauma, is decreased by a miotic. So we see that there are valid arguments on either side. Cases have cleared up with either drug used, but personally, I prefer atropine.

Pilocarpine was used in 6 per cent of the cases in the present group, DFP in 1 per cent and prostigmine in 0.7 per cent. The latter two drugs are too powerful to be used in hyphema cases, as their pull may increase ciliary body damage.

Scopolamine was used in 5 per cent of these cases, and used only, I believe, when a sensitivity to atropine was present.

Homatropine was used in 6 per cent of the present series and is favored by those who use miotics with secondary glaucoma. They feel that if glaucoma develops, homatropine will be easier for miotics to overcome, rather than atropine.

Although 10 per cent neosynephrine was used in 6 per cent of cases, that too, is too powerful to be used in hyphema. If it were to cause a sudden strong pull on a synechium, a blood vessel could be torn and secondary hyphema result.

Ten per cent of cases were treated with topical cortisone, 1 per cent with intramuscular cortisone, and one case was

given the drug subconjunctivally. Benedict and Hollenhorst,[1] state that subconjunctival cortisone retards the rate of absorption of blood in hyphemic eyes. In addition, it may retard reparative processes that would keep secondary hyphema from occurring.

The problem of using agents to aid the blood clotting mechanism is well discussed by Thygeson and Beard. They conclude that vitamin K is ineffectual in hyphema, but recommend the use of rutin and vitamin C to reduce the possibility of capillary fragility. In the present cases, 20 per cent received rutin, 27 per cent received vitamin K, 24 per cent received vitamin C and 15 per cent received calcium. Vitamins A, B and D were used in a few of the cases here reported, but with no particular benefit and with no theoretical reason behind this therapy.

Dionine was used in one case to accelerate resorption of a corneal stain, but it did not accomplish its purpose.

TABLE 4
THERAPY

	No. Cases	Percent
Bed rest	130	89
Atropine	118	81
Bilateral patch	77	53
Vitamin K	39	27
Vitamin C	35	24
Rutin	29	20
Calcium 22	22	15
Compresses (Warm)	22	15
Fever therapy (Typhoid IV)	17	12
Cortisone (Topical drops)	14	10
Dehydration	13	9
Paracentesis	12	8
Irrigation anterior chamber	10	7
Fever therapy (Milk IM)	10	7
Homatropine	9	6
Neosynephrine 10%	9	6
Pilocarpine	9	6
Scopolamine	8	5
Compresses (Cold)	5	3
Vitamin B	3	2
Vitamin D	3	1
D F P	2	1
Cortisone (IM)	2	1
Salicylates	1	0.7
Cortisone	1	0.7
Dionine	1	0.7
Varidase (in AC)	1	0.7
Vitamin A	1	0.7
Prostigmine	1	0.7

Fever therapy, (IV typhoid), was used in 12 per cent of these cases and 7 per cent received IM milk. Ordinarily this type therapy is contraindicated in hyphema, as is cortisone therapy. In addition, fever therapy makes the patient quite restless and uncomfortable. If there is a lens rupture, fever therapy may be used, but only then.

Salicylates were used as therapy in only one instance in this group of cases, so cannot be evaluated as therapy.

Warm compresses were used in 22, (15 per cent), of these cases and cold compresses in 5, (3 per cent). Both are contraindicated in hyphema as any compress will necessitate removing the bandage and other manipulations which are unecessary and particularly disturbing in children. Warm compresses will increase blood vessel size and predispose to secondary hemorrhage.

Nine per cent of these cases received dehydration therapy, as recommended by W. B. Clark. All cases but 2 did well, one who had severe injury and the other who had luetic optic atrophy. This type of treatment appears on theoretical grounds and clinical results, to be reasonable. Those cases with secondary glaucoma would appear to be especially benefitted.

Surgical therapy was employed as follows: paracentesis, 12 cases, (8 per cent) and irrigation of the anterior chamber in 10 cases, (7 per cent). Simple, partial hyphema is not a surgical problem. Handling of partial hyphema with complications depends on the complications and is left to the surgeon's judgment.

Complete hyphema is always a surgical problem and should be operated as soon as possible. Incision should be done at twelve o'clock on the limbus and with a keratome. A large enough incision should be made, (before loss of aqueous), so that clots can be evacuated, or so that it may be enlarged easily with scissors. The incision, incidentally, should be corneal, to avoid scleral bleeding. Anterior chamber irrigation with warm saline should be done to rid the anterior chamber

of clots. Blind groping for clots with forceps is to be discouraged.

One patient with complete hyphema had the anterior chamber irrigated with dilute streptokinase-streptodornase solution. Not only did the clot remain, but a terrific uveitis resulted. Such treatment is not recommended.

RESULTS

I	Total cases (146)		
	Total cured of hyphema	133	(91%)
	Total lost eyes	12	(8.2%)
	Deserted	1	(0.7%)
II	Partial hyphema cases (114)		
	Total cured of hyphema	113	(99.1%)
	Total lost eyes	1	(0.9%)
III	Complete hyphema cases (27)		
	Total cured of hyphema	15	(55.5%)
	Total lost eyes	11	(40.7%)
	Undetermined	1	(3.8%)

CONCLUSIONS

1. The one etiologic factor we can control is the use of "BB" guns, which should be outlawed in states not already having this legislation.

2. Cases in this series were predominantly males, Negroes and children.

3. Complications in this series are tabulated.

4. Cases should be divided into partial and complete upon first being seen. The former are medical cases and the latter are surgical.

5. Secondary bleeding occurred at an average of 5.7 days after injury—longer than reported in other series.

6. Ninety-nine per cent of partial hyphemas were cured in this group and 55.5 per cent of complete hyphemas were cured.

7. Therapy advocated in all hyphemas is: Absolute bed rest, bilateral patch, sedation, atropine, rutin, vitamin C and dehydration. In addition, keratome incision, with anterior chamber irrigation, is recommended early with complete hyphema.

8. Secondary hemorrhage, which is partial, calls for no change in therapy. That which completely fills the anterior chamber calls for immediate paracentesis and irrigation.

9. Hyphema associated with secondary glaucoma calls for no change in the routine as outlined for complete or partial filling of the anterior chamber.

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SURVEY SHOWS PUBLIC'S OPINION OF DOCTORS

The results of a nationwide survey to show the public's opinion of the medical profession have recently been announced. The study was sponsored by the American Medical Association in order to find out what might be needed to improve doctors' services. It was authorized by the Board of Trustees, in February 1955, and conducted by Ben Gaffin & Associates, Chicago, opinion and market research firm. The interviewing was done by 289 professional surveyors, and the interviewees were selected so that the proportion of people from various age, economic, geographical, and other groups matched the proportion of such people in the total U.S. population.

Among them were 3000 private citizens, 500 practicing physicians, 100 editors, commentators, and columnists, 100 attorneys, 100 registered nurses, 100 registered pharmacists, and 100 nonphysician executive secretaries of state and county medical societies.

The questions were approved by the American Medical Association but were suggested by the survey firm, which said in its report that "it is to be emphasized that the public, individual doctors, and the research agency established the issues."

In view of the steady flow of articles in the daily press, and in magazines, such a survey was most timely. Many of these articles are designed to be antagonistic, or slanted to be critical of physicians and of their conduct of the affairs of American medicine.

It was anticipated that the survey would point the way toward what is needed to improve doctors' services, and possibly, provide material with which to combat our critics. The results have been both reassuring and illuminating. The findings are quite voluminous and can be considered under three headings: (1) the public's views about physicians, (2) the public's views about organized medicine and medical economics, and (3) doctors' views about organized medicine.

When considering the public's views about physicians, it should be realized that America's doctors occupy a unique role in modern life. The relationship of the doctor with people is such as to touch the inmost portions of their physical and emotional structure. He is the one to whom they look to guide them through life's major crises. They unconsciously endow him with attributes he may not possess and come to judge him by standards different from those by which they judge

other human beings. It is a source of some consolation, therefore, that what they appear to criticize is a matter of time and economics, and not our personality or ability.

The survey showed that most Americans have their own family doctor and most of them like him, and like doctors as a group; people's opinions gained from their own experience differ from those based on hearsay or other sources; doctors are more critical of themselves than are other people. When people are critical of physicians it is largely for the cost of the care; they do not, however, think doctors are trying to get rich quick. The public seems to be evenly split for and against the "sliding scales" of fees. About nine out of ten have a high opinion of the family doctor's intelligence, capability, devotion to his profession, and personal interest in patients. Their most unfavorable comment is that he thinks he is always right and is hard to reach for emergency calls.

When it comes to the opinion of doctors generally, 93 per cent of those surveyed say doctors as a group are likeable, but they use different standards in judging doctors other than their own. When they speak of doctors they do not know personally they are critical mostly of fees, coldness, impatience, lack of frankness, unavailability, and incompetence.

Five-sixths of Americans have family doctors and they tend to think of their doctor as someone special. In their reasons for saying he is different, 32 per cent assign personal interest, sympathy, and kindness; 19 per cent competence, intelligence, and education; 17 per cent friendliness, personality, and manner; 9 per cent frankness and honesty. When given a chance to criticize, the leading complaint listed by 13 per cent is "their charges and interest in money." Nine per cent mentioned each of these complaints: "don't take enough time and hurry you too much," "impersonal, cold, independent." and "not frank, speak half-truths, dishonest." Some of those listing dislikes said that their complaints referred only to "some, not most" doctors.

The majority of those interviewed denied most of the frequently voiced complaints about doctors when speaking of their own. For instance, when speaking of their own doctor, 19 per cent said that the doctor was hard to reach for emergency calls; but in speaking of other doctors, 51 per cent said that he was hard to reach. When speaking of doctors keeping people waiting longer than necessary, 15 per cent said it was true of their own doctor, but 41 per cent said it was true of doctors in general. Sixty per cent of the public say that most doctors do not give the patient as much time as the patient would like; while only 18 per cent say this is true of their own doctor.

The survey shows that the majority of the public tries to interpret the ways of medicine accurately, but it can only do this when viewed in the light of experience with the individual's own physician. Physicians themselves can take pride in this indication of the public's appreciation of their efforts to discharge an obligation properly, and that in some degree they have attained a part of the goal set for themselves. However, they can take heed that in the long run the public can accurately assess their shortcomings. The basis for public relations is in the doctor's office.

The survey contains a mass of material which will be a valuable guide to the individual and to organized medicine in the future, and the full report will repay study by every physician.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

1956 ANNUAL MEETING

Have you made arrangements to attend the Seventy-sixth Annual Meeting to be held in Alexandria April 23-25? Requests for hotel reservations should be sent to Dr. D. B. Barber, 200 DeSoto Street, Alexandria, promptly. Although accommodations at the Bentley Hotel, headquarters for the meeting, are limited, rooms are now available at the Evangeline Hotel and at several very good motels and tourist courts. It is necessary, however, for requests to be submitted well in advance because rooms, not reserved, will not be held indefinitely for use by members of the Society.

The local Committee on Arrangements has been most active and plans are nearing completion. All technical exhibit space has been sold and from applications received indication is that there will be many interesting scientific exhibits. Members desiring scientific exhibit space should apply through the Secretary-Treasurer's office immediately.

The Chairmen of the various scientific sections have secured many creditable papers from Louisiana doctors, as well as from several out-of-state guests, and the Committee on Scientific Work will schedule presentation of these papers in accordance with wishes of the Executive Committee. There will be sessions on medicine and on surgery held simultaneously on the mornings and afternoons of Tuesday, April 24 and Wednesday, April 25.

A luncheon, with a clinico-pathologic conference, will be scheduled for Tuesday and all members are urged to make plans to attend this session.

Specialty groups wishing to hold luncheons during the time of the Annual Meeting should contact the office of the Secretary-Treasurer so that suitable arrangements can be made through the local Committee on Luncheons. It should be remembered, however, that luncheons for these groups should not conflict with sessions of the State Society and therefore should be planned for Wednesday, April 25, since the luncheon for the House of Delegates will be held on Monday and the membership luncheon on Tuesday.

The social phase of the meeting will include a golf tournament for all members interested and the dinner dance will be scheduled for the last night of the meeting, Wednesday, April 25. This should be remembered when requesting hotel reservations.

It is expected that this will be one of the most interesting, instructive and enjoyable meetings in the history of the State Society and it is hoped that there will be an unprecedented attendance.

OF INTEREST TO ALL MEMBERS

Quite a number of new Representatives and Senators and one definite Chiropractor by the name of John S. Lewis, in the House from Beauregard Parish, will serve in the House and Senate for the coming Session. Our fight will be one in which every member of the State Society should and will be expected to contact his Representative and Senator in his respective Parish or district. Request your Representative not only to vote against any Chiropractic Bill that might be introduced but, also to avoid trading votes with Chiropractor Lewis, thereby obligating themselves to vote for his Legislation, which, in all probability, will be only one Bill and that Bill will be for licensing Chiropractors. Do this immediately. Don't wait until the Legislature is in Session. Delay is dangerous.

Our Legislative Consultant, Mr. Percy J. Landry, Jr. has been quite active in contacting candidates and elected members of the Legislature regarding possible legislation which might affect the welfare of the public, organized medicine and our profession.

You, as members, should, without delay, contact the Legislators advising them that these cultists are practicing medicine illegally. They are not qualified by education or experience and are a distinct danger in any community and the people who patronize these cultists, as you well know, are jeopardizing their own best interests. It is our duty as physicians to inform and educate the public that these cultists are not Doctors of Medicine as a good many of our people think. Let them know that they are imposters.

REPORT OF COMMITTEE CHAIRMAN AMERICAN MEDICAL EDUCATION FOUNDATION

I enclose material which pertains to the recent meeting of State Chairmen of the American Medical Education Foundation which I attended. The program was along the same lines as that of last year, the obvious objective of most of the morning session being to sell the State Chairmen upon the importance of the AMEF and of the National Fund for Medical Education to the future of the medical schools. I did not need to be sold on this point, since the gifts

to our own medical school from the National Fund for Medical Education, which are in the form of unrestricted grants, have been of great help to us, as they have been to all other schools. In the past there had been no unrestricted funds in our budget or, as I gathered at the meeting, in the budgets of other medical schools. All funds were rigidly earmarked for particular purposes so that little flexibility in the teaching or research program was possible. The National Fund grants have enabled us to begin educational and research projects soon after they were conceived, and those which were successful later received support from ordinary University sources.

The last paper on the morning program was devoted to Medical Education Week, which is described in one of the enclosed folders. The purpose of this week, which will be officially proclaimed as such by President Eisenhower, is to acquaint the public with the problems and needs of medical education as well as to raise funds for the AMEF.

During the afternoon discussion some of the State Chairmen criticised AMEF for making plans without consulting the various States, especially in relation to Medical Education Week, and also remarked upon the fact that whereas AMEF had planned Medical Education Week to be chiefly an educational venture, the National Fund seemed to regard it principally as a fund-raising campaign.

It was also brought out that some States have made very substantial contributions to AMEF, whereas contributions from other States were very, very small. It was noted that Louisiana was one of the States in which contributions were extremely small.

In a few States a compulsory assessment or a raise in dues has been made as a means of contribution to the AMEF. There was considerable discussion as to whether the group should recommend to the AMA or to the State Associations that a policy of compulsory assessments be adopted. The body finally voted, with only three dissenting votes, to go on record as favoring compulsory assessments for AMEF. I was one of the three who voted against this motion. On the second motion, the body again voted by a substantial majority that assessments be made at the AMA level. I also voted against this motion. It is my feeling that although the AMEF and the National Fund for Medical Education serve an extremely useful purpose, contributions by physicians to the AMEF or any other campaign should not be compulsory. I do, however, favor an active campaign in this State among physicians to solicit contributions to the AMEF. Last year, although grants from the National Fund to the medical schools in Louisiana exceeded $60,000, the total amount donated by physicians in the State was less than $3,000. I recommend that prior to the meeting of the State Medical Society a meeting of the AMEF Committee be held so that recommendations may be made to the House of Delegates in this regard.

EDGAR HULL, M. D., Chairman

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February, 1956

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Secretary: Dr. W. R. Aderhold, Alexandria

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

A CANCER CONFERENCE

A working conference for investigators in the field of leukemia will be held in New Orleans, La., April 10th and 11th, sponsored by the Louisiana Division of the American Cancer Society.

Principals in the conference include Dr. W. R. Arrowsmith of the Ochsner Clinic New Orleans; Dr. G. John Buddingh of Louisiana State University School of medicine; Dr. Joseph H. Burchenal of Sloan-Kettering Institute for Cancer Research; Dr. Walter J. Burdette of the University of Missouri School of Medicine; Dr. Jacob Furth of Children's Cancer Research Foundation; Dr. Alfred Gellhorn of College of Physicians and Surgeons, Columbia University; Dr. Ludwik Gross of the Bronx, New York, VA Hospital; Dr. Arthur Kirschbaum of Baylor University School of Medicine; Dr. Lloyd W. Law of the National Cancer Institute; Dr. Charles C. Sprague of Tulane University School of Medicine; Dr. Jerome T. Syverton of the University of Minnesota; and Dr. Arthur C. Upton of the Oak Ridge National Laboratory.

Each principal in the conference will present a fifteen minute paper on one of three topics, diagnosis, etiology or therapy of leukemia, to be followed by general discussion among the conference participants.

Investigators in this and allied fields are welcome to attend any of the four sessions to be held during the two day conference. Those desiring to attend should communicate with the American Cancer Society, 822 Perdido St., New Orleans La. before April 1st.

FIVE-MINUTE, FOOL-PROOF SPOT TEST FOR GOLD DEVELOPED BY LSU PROFESSOR

A new rapid spot test that identifies the faintest traces of gold in five minutes is the result of a 15-month search by a Louisiana State University professor.

The new spot test is expected to benefit chemical researchers who suspect traces of gold in a compound. The only equipment needed: two test tubes, a medicine dropper, the reagent, acid, and butyl alcohol.

Dr. Philip W. West, Boyd Professor of chemistry at LSU and an international authority on spot test techniques, developed the new method after a 15-month search for a proper reagent, a chemical that detects other substances.

Naphthylamine, used in dye manufacture, is the reagent in Dr. West's process. The new technique may find an application to medicine in testing the blood of patients troubled by arthritis. Small amounts of gold are sometimes used to relieve the sufferings of arthritis victims.

BEER FOUND HELPFUL AND HEART PATIENTS LOVE IT

Beer may no longer be just a fond dream to many sufferers of congestive heart failure, according to a forum article in the current issue of **Diuretic Review**, distributed to the medical profession by Lakeside Laboratories, Inc. of Milwaukee, Wisc.

The article cites recent studies in British and Swiss professional journals which mention twofold advantages of beer in the diet of patients with cardiac failure.

First, and most important, is the well-known diuretic property of beer in relieving liquid congestion common to sufferers.

In one paper cited by **Diuretic Review**, for example, a specific regimen is described by a specialist in Great Britain. Two bottles of beer replaced equivalent volumes of water in a total fluid intake of one-and-one-half liters.

A second advantage was then observed. Beer can safely be added to persons on a salt-free diet. The salt content of the beverage is sufficiently low.

CENSUS OF FOREIGN EXCHANGEES

Almost 40,000 foreign students, scholars and doctors spent the 1954-55 academic year in the United States, according to **Open Doors**, the annual census of foreign exchangees in the United States, recently published by the Institute of International Education, 1 East 67th Street, New York City.

The report gives data on the 34,232 students from abroad who studied in the U. S. this last year, on 635 scholars on the faculties of U. S. educational institutions, and on 5,036 foreign doctors training as interns or residents in U. S. hospitals. This is the first year in which the census has given information on foreign scholars and doctors.

Of the total of 39,903 exchangees, 29 percent came from the Far East; 24 percent from Latin America; 17 percent from Europe; 13 percent from North America; 13 percent from the Near and Middle East; 3 percent from Africa, and 1 percent from Oceania.

COMPREHENSIVE STUDY OF MERCURIAL MEDICATION IN CARDIAC CASES

"Is there accumulation of mercury in the course of treatment with mercurial diuretics?

"Is renal function impaired or damaged?

"How much mercury does accumulate in the kidney and other vital organs after extensive use of mercurial diuretics?"

Organomercurial medication in heart failure has been studied comprehensively over a long period for laboratory evidence of its effect on organs as well as its clinical effectiveness, by William A. Leff, M. D., and Harvey E. Nussbaum, M. D., cardiologists of the Beth Israel Hospital in Newark, N. J.

The battery of tests included urinalysis, urea nitrogen, NPN, creatinine, P.S.P. tests, urea clearance tests, and electrolyte studies. There were three deaths in this series, none of whom died in failure, and autopsy studies were made in these cases.

They have found oral organomercurial diuretic chlormerodrin (Neohydrin-Lakeside Laboratories) clinically effective without evidence of renal toxicity.

Moreover, the pathologic studies have shown no damage to the liver and kidneys, even in patients who received tremendous amounts of mercury.

ASPIRIN PREFERRED IN RHEUMATOID ARTHRITIS

Aspirin is the analgesic of choice in treating rheumatoid arthritis and, combined with rest and physical therapy, still constitutes the basic approach in managing the condition, according to a panel discussion reported in **California Medicine** (82:367, 1955).

The panel consisted of Drs. Ephraim P. Engleman, Howard J. Weinberger, Carlos F. Sacasa, Nathan E. Headley, Roland Davison, Stacy R. Mettier and Frederic W. Rhinelander.

Aspirin not only has proven analgesic activity in rheumatoid arthritis but "has a definite effect on the connective tissues involved in the disease," Dr. Davison stated. Urging liberal use of aspirin, he recommended a dose of 15 grains every four hours during the day.

Various combinations of salicylates and other drugs, notably para-aminobenzoic acid, have failed to demonstrate any greater effectiveness than aspirin, the panel agreed.

NEW MALARIA DRUG ACTS FAST AGAINST VIVAX AND FALCIPARUM

Plaquenil, a new antimalarial compound, resulted in rapid clinical improvement in 213 cases of P. vivax and P. falciparum infections, without any toxic effects, according to Dr. Mark T. Hoekenga of the United Fruit Co. Hospital in La Lima, Honduras.

Writing in the American Journal of Tropical Medicine and Hygiene (4:22, 1955), he says the new antimalarial was given orally and parenterally to Honduran natives ranging in age from seven to 65 years. Developed at the Sterling-Winthrop Research Institute, Plaquenil is presently under clinical study by Winthrop-Stearns Inc.

Dr. Hoekenga reports that parasites disappeared and fevers were brought down to normal in 18 to 48 hours. These results were obtained both in an orally treated group of 150 patients and in the 63 who received Plaquenil intramuscularly or intravenously. Single doses of varying concentrations were used for all 213 cases. Treatment failed in eight cases and only three relapses were noted. The latter were retreated and had no further relapses at the end of one year's observation.

BOOK REVIEWS

The Mechanism of Labour by Erik Rydberg, M. D., Springfield, Illinois, Charles C Thomas, 1954, pp 180, Price $4.75.

This book is a presentation of the author's ideas on the mechanism of labor, many of which are at variance with the views set forth in the textbooks of obstetrics. For example, his concept of flexion of the head is quite different from the usual one, so he has described "positional flexion" and "postural flexion". He differs also as regards the attitude of the fetus in the uterus, and the disposition of the fetal soft parts. He is

of the opinion that the downward propulsion of the child is the result of general intrauterine pressure, and that so-called fetal axis pressure, transmitted through the spinal column to the head, simply does not exist.

The author states that "The present writer concluded, therefore—and this is the essential point of his theory—that the *movements* of the *fetal head during labor are determined essentially by the shape of the head and the shape, elasticity, and plasticity of the wall of the soft birth canal* (Chapter 2). And again "*The author's conclusion is that the shape of the fetal head is the chief factor in determining its movements during labor*". (Chapter 7, Summary). In supporting these contentions the author marshalls a mass of statistics, x-ray studies, and experiments with models which make quite an impressive presentation. It is a book which can not be read casually; it must be studied, analyzed, and intellectually digested. It is well written and the author's views are well presented and seemingly well substantiated. It is recommended for the thoughtful perusal of everyone in the field of obstetrics.

E. L. KING, M. D.

The Auxiliary Heart; by William Walter Wasson, Springfield, Ill., Charles C Thomas, 1954, pp. 184. Price $10.50.

The author uses the term "auxiliary heart" to include all the factors which aid the heart in propelling the blood through the lungs. He discusses the part played by (1) the alternating changes in pressure associated with the muscular action of the thoracic cage and diaphragm, and the counter action of the elastic tissue of the lung itself; (2) the pressure gradient in the vascular system.

He believes that the lack of any relative increase in the thickness of the right ventricle in post fetal life indicates that the measure of aid given by the "auxiliary heart" is the difference in the amount of blood pumped through the lung by the adult as compared with the fetal type of circulation.

He states that the propulsion of the lymph through the lung is brought about by the same factors which constitute the "auxiliary heart".

The effects of interfering with the functions of the auxiliary heart are described. The secondary changes occurring when anoxia supervenes are briefly touched upon.

More than half of the main part of the book is composed of excellent diagrams and reproductions of illustrative radiographs. The final chapter is a historical sketch of the lesser circulation by Mindell W. Stein, B.S.

The book constitutes a good review of certain aspects of thoracic physiology.

CHARLES ODERR, M. D.

Reactions with Drug Therapy; by Harry L. Alexander, M. D., Philadelphia, Pa., W. B. Saunders Company, 1955, Pp 301, Price $7.50.

After some brief introductory remarks on drug reactions, the author devotes a chapter to the mechanisms of drug hypersensitivity and cross reactions between drugs as well as other chemical compounds. The historical data and explanations are brief but adequate, and the references listed provide ample source material for the student who wishes to pursue further this aspect of drug reactions.

The next two chapters describe the various dermatologic manifestations and systemic patterns which can be produced by drug hypersensitivity. The numerous tables in these chapters provide helpful sources from which one can find the drugs which most frequently induce the various specific reaction patterns.

The remainder of the book deals with individual compounds or groups of compounds as regards the frequency, the description, and something of the treatment of the dermatologic and systemic patterns they induce. Such information is of undoubted practical benefit to anyone who is using drug therapy, but the author attempts in most cases to limit the text to reactions due only to hypersensitivity. This limitation reduces the practical scope of the book because the reader is not warned of such ill effects as cinchonism, the hepatoxic effect of carbon tetrachloride, or the premalignant nature of arsenical hyperkeratoses.

References are abundantly supplied after each chapter in the book.

MARVIN E. CHERNOSKY, M. D.

PUBLICATIONS RECEIVED

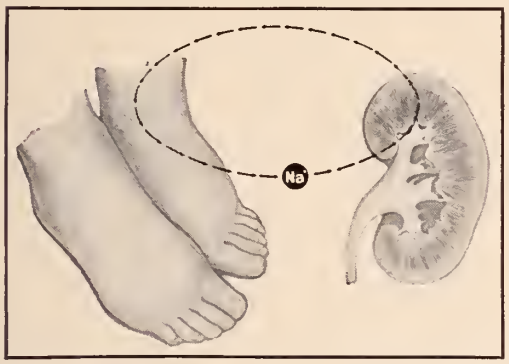
Little, Brown and Company, Boston: Ciba Foundation Symposium on Experimental Tuberculosis, Bacillus and Host, with an Addendum of Leprosy.

Charles C Thomas, Publisher, Springfield, Ill.: Joint Ligament Relaxation Treated by Fibro-Osseous Proliferation, by George S. Hackett, M. D.

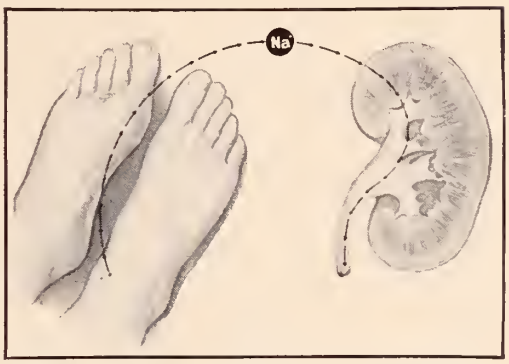
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WITHOUT MICTINE — *Prior to diuretic therapy excessive sodium and water are characteristically retained in the edematous patient.*



WITH MICTINE — *Inhibition of the reabsorption of sodium ion leads to an increased excretion of sodium ion, water and chloride.*

An effective diuretic has been described as one which causes excretion of water, sodium and chloride in amounts sufficient to reduce the edema but not to result in salt depletion.

Mictine (brand of aminometradine) introduces to clinical practice an *improved* diuretic which not only meets the standard qualifications but has these seven additional advantages:

Mictine is orally effective; it is not a mercurial; it has no known contraindications; it does not upset the acid-base balance; it exerts no significant influence on electrolyte balance; it may be given in the presence of renal or hepatic diseases; it is well tolerated.

As with most effective therapeutic agents, in high dosage Mictine may cause some side effects in some patients; however, on three tablets daily side effects (anorexia and nausea, rarely vomiting, diarrhea or headache) are minimal or absent.

Clinically, Mictine is useful in the maintenance of an edema-free state in all patients and for initial and continuing diuresis in mild or moderate congestive failure. It is not intended for initial diuresis in severe congestive failure unless either sensitivity or tolerance to other diuretics has developed in the patient.

The maintenance dosage of Mictine, as well as for initial diuresis in mild or moderate congestive heart failure, is one to four 200-mg. tablets daily in divided doses; the dosage for initial diuresis in severe congestive failure, under the conditions already described, is four to six tablets daily. For either use, it is recommended that Mictine be prescribed with meals on interrupted dosage schedules; that is, prescribing Mictine on alternate days or for three consecutive days and omitting it the next four days.

*Trademark of G. D. Searle & Co.

Descriptive literature and clinical trial packages are available on request to . . .

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Tetracycline *Lederle*

widely prescribed because of these important advantages:

1) rapid diffusion and penetration
2) prompt control of infection
3) true broad-spectrum activity (proved effective against a wide variety of infections caused by Gram-positive Gram-negative bacteria, rickettsiae, certain viruses and protozoa)
4) negligible side effects
5) every gram produced in Lederle's *o* laboratories under rigid quality con and offered *only* under the Lederle l
6) a *complete* line of dosage forms



in prolonged illness, prescribe

ACHROMYCIN SF

TETRACYCLINE with STRESS FORMULA VITAMINS

Attacks the infection, bolsters the body's natural defense. Stress vitamin formula suggested by the National Research Council in *dry-filled, sealed* capsules with ACHROMYCIN, 250 mg. Also available: ACHROMYCIN SF ORAL SUSPENSION (Cherry Flavor), 125 mg. per 5 cc. plus vitamins.

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(a Lederle exclusive!) for more rapid and complete absorption. No oils, no paste, tamperproof!

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All four Pablum varieties are especially enriched with iron in its most assimilable form. And all are enriched with thiamine, riboflavin, calcium, phosphorus and copper.

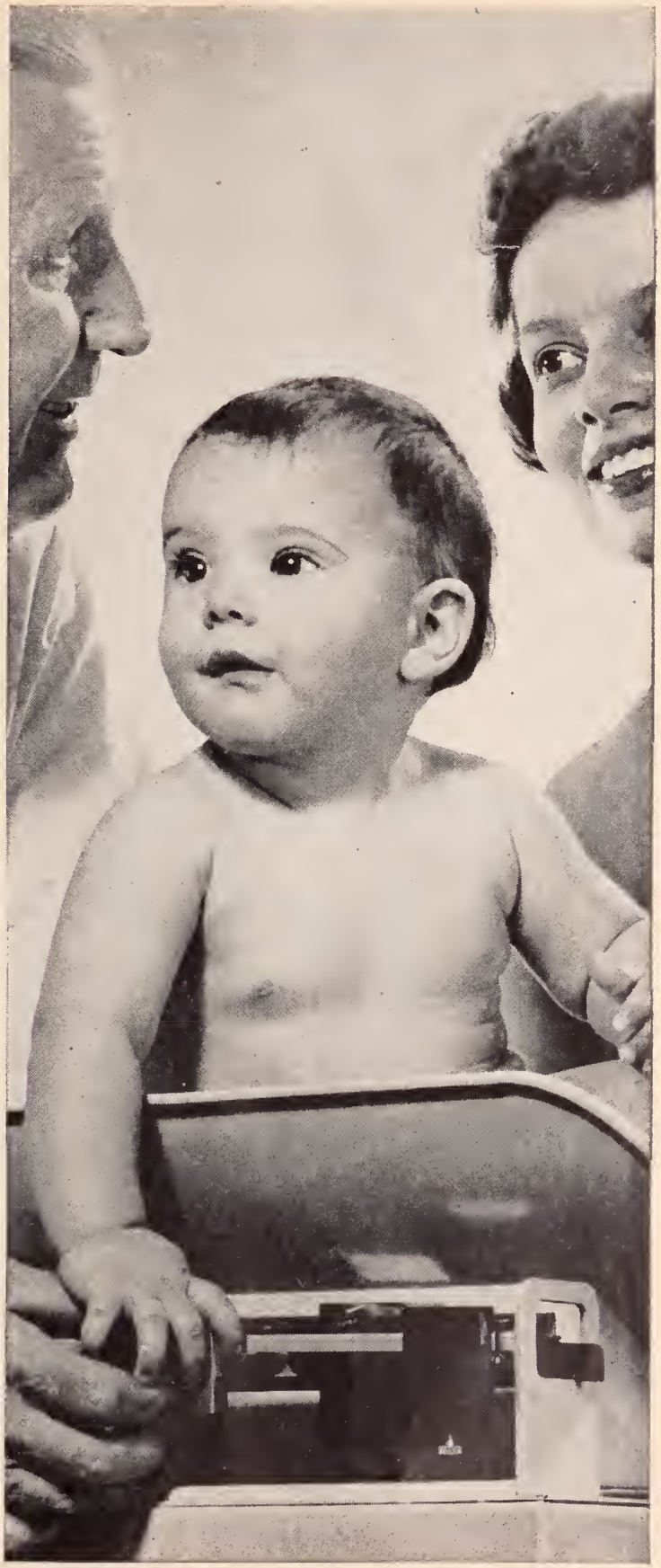
To be sure infants *enjoy* Pablum Cereals, our scientists work tirelessly to make them wonderfully smooth in texture, delightfully delicate in flavor. For your young patients, suggest:

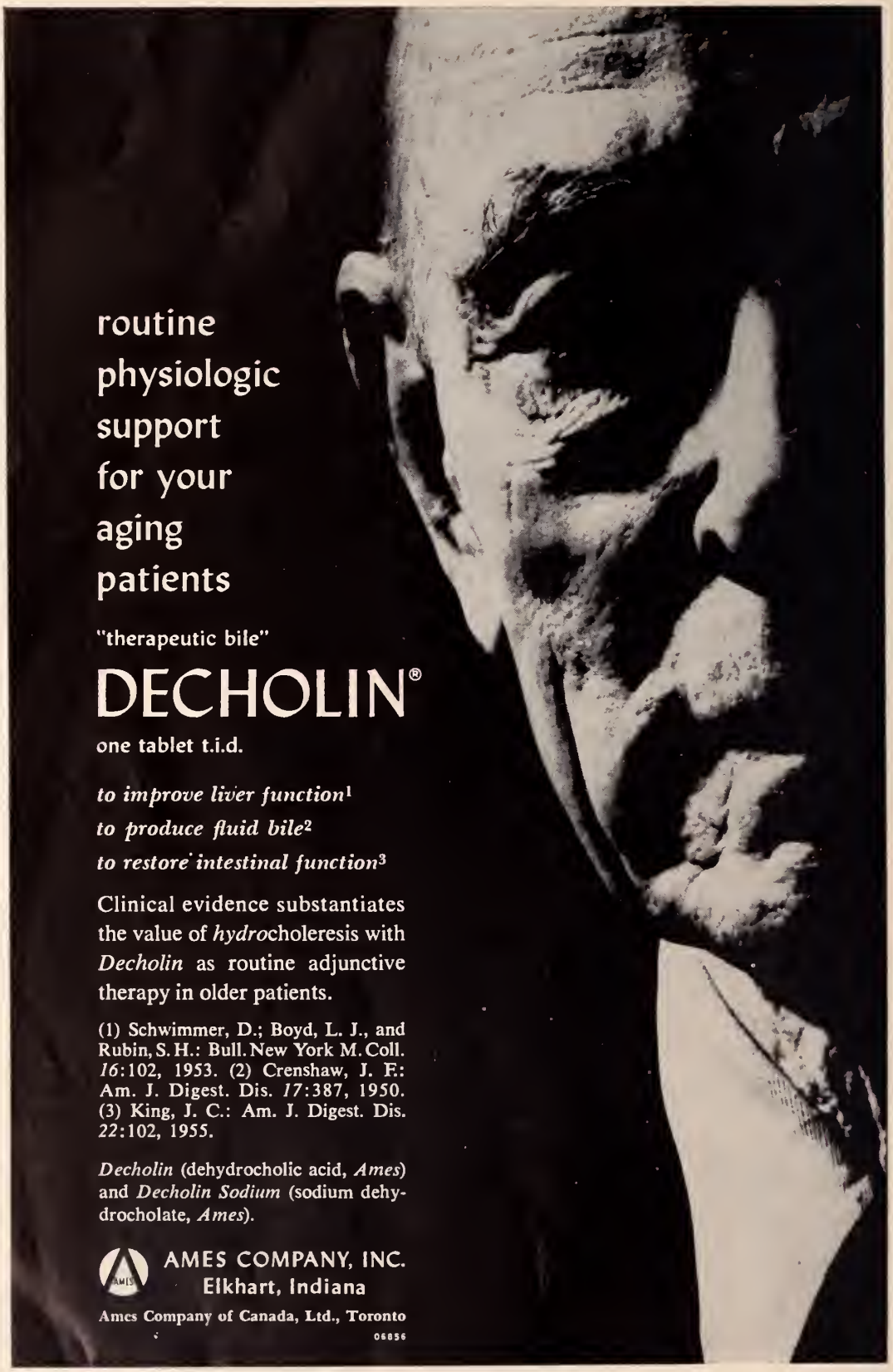
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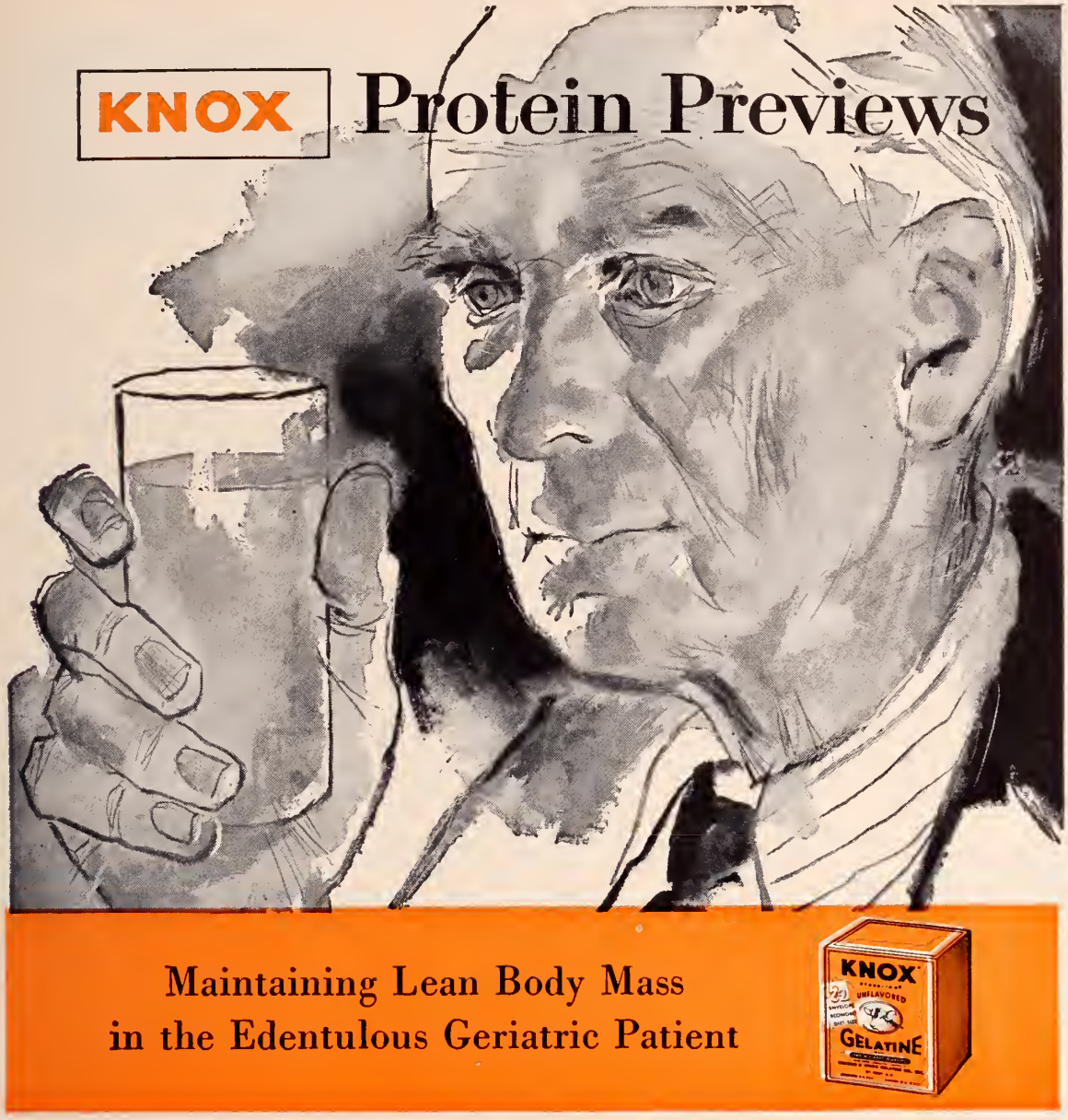
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to improve liver function[1]
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Clinical evidence substantiates the value of *hydro*choleresis with *Decholin* as routine adjunctive therapy in older patients.
(1) Schwimmer, D.; Boyd, L. J., and Rubin, S. H.: Bull. New York M. Coll. *16*:102, 1953. (2) Crenshaw, J. F.: Am. J. Digest. Dis. *17*:387, 1950. (3) King, J. C.: Am. J. Digest. Dis. *22*:102, 1955.
Decholin (dehydrocholic acid, *Ames*) and *Decholin Sodium* (sodium dehydrocholate, *Ames*).
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Extensive loss of body protein can occur in either the spare or obese geriatric patient. But whatever the patient's somatotype, a decrease in lean body mass is usually the result of inadequate protein intake due to poor dentition, slowed-down digestion and quite frequently, unappetizing main dishes.

Knox Gelatine is an excellent non-residue protein which is easy to chew and readily digested and assimilated. As a vehicle for many foods, Knox Gelatine brightens bland diets, giving a new interest to jaded appetites. As a concentrated protein drink, Knox Gelatine supplies seven out of eight essential amino acids and a majority of the other amino acids composing protein.

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GERIATRIC_____ REDUCING_____

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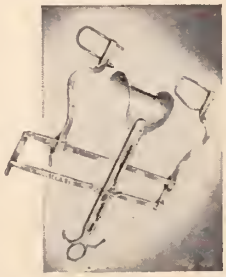
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Rheumatoid arthritis, rheumatic fever, intractable asthma, allergies . . .

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5 mg. tablets in bottles of 50
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*REGISTERED TRADEMARK FOR THE UPJOHN BRAND OF HYDROCORTISONE (COMPOUND F)

The Upjohn Company, Kalamazoo, Michigan



Erythromycin in treatment of pyoderma*

8/12/55

DISCHARGE SUMMARY

Patient, white female, age 39, entered hospital with a diagnosis of lymphoma, proved to be lymphosarcoma by biopsy.

Initially she was treated by X-ray radiation, adrenal cortical hormone and an antinauseant. During this regimen she developed a generalized rash which became infected. This was a drug reaction with infection due either to (1) scratching or (2) a low WBC count due to radiation. A number of boil-like lesions appeared over the body.

On 8/4 penicillin was started in a dosage of 600,000 units daily. Penicillin was continued for six days during which time the pyoderma became worse.

Aspirated material from the lesions yielded hem. S. aureus, coag. + and the following sensitivities were obtained: penicillin, more than 10 units; erythromycin, 10 mcg.; tetracycline, 50 mcg. When these results became available penicillin was discontinued.

On 8/9, erythromycin was started in a dosage of 200 mgm. q.i.d. Marked improvement was noted very soon and by 8/12 almost complete healing of all lesions had occurred. Patient was afebrile throughout.

Final Diagnosis: (1) lymphosarcoma (2) secondary pyoderma due to hemolytic Staphylococcus aureus.

Result: complete healing of secondary pyoderma with erythromycin.



*Communication to Abbott Laboratories

pecific against
occic infections

Now, you can prescribe an antibiotic (*Filmtab* ERYTHROCIN) that provides *specific therapy* against staph-, strep- or pneumococci. Since these organisms cause most bacterial respiratory infections (and since they are the very organisms most sensitive to ERYTHROCIN) doesn't it make good sense to prescribe ERYTHROCIN when the infection is coccic?

filmtab®

Erythrocin®
(Erythromycin, Abbott)
STEARATE

with little risk of
erious side effects

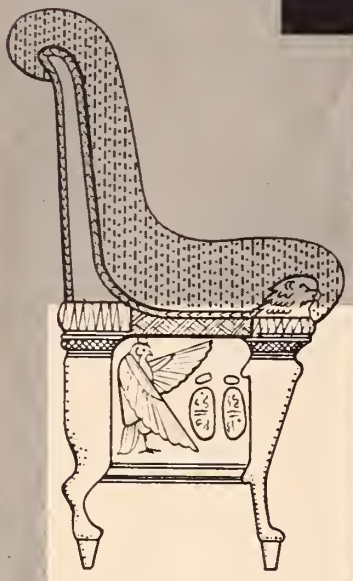
Since ERYTHROCIN is inactive against gram-negative organisms, it is less likely to alter intestinal flora—with an accompanying low incidence of side effects. Also, your patients seldom get the allergic reactions sometimes seen with penicillin. Or loss of accessory vitamins during ERYTHROCIN therapy. *Filmtab* ERYTHROCIN (100 and 250 mg.), bottles of 25 and 100.

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Synergistic Therapy with New

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Now you can give your hypertension patients the compound therapeutic advantages of two successful hypotensive agents: Theominal (theobromine with Luminal®) and purified Rauwolfia serpentina alkaloids.

THEOMINAL R. S. *gives*
Better Control of Cardiovascular and Subjective Symptoms

Theominal R. S. offers both the vasodilator and myocardial stimulant actions of theobromine with Luminal and the moderate central hypotensive effect of Rauwolfia serpentina. Gentle sedation calms the patient and a feeling of "relaxed well-being" is established. With Theominal R. S. the therapeutic potency of each of the components is enhanced and the chance of a patient's sensitivity to any one drug is lessened.

Each Theominal R. S. tablet contains:

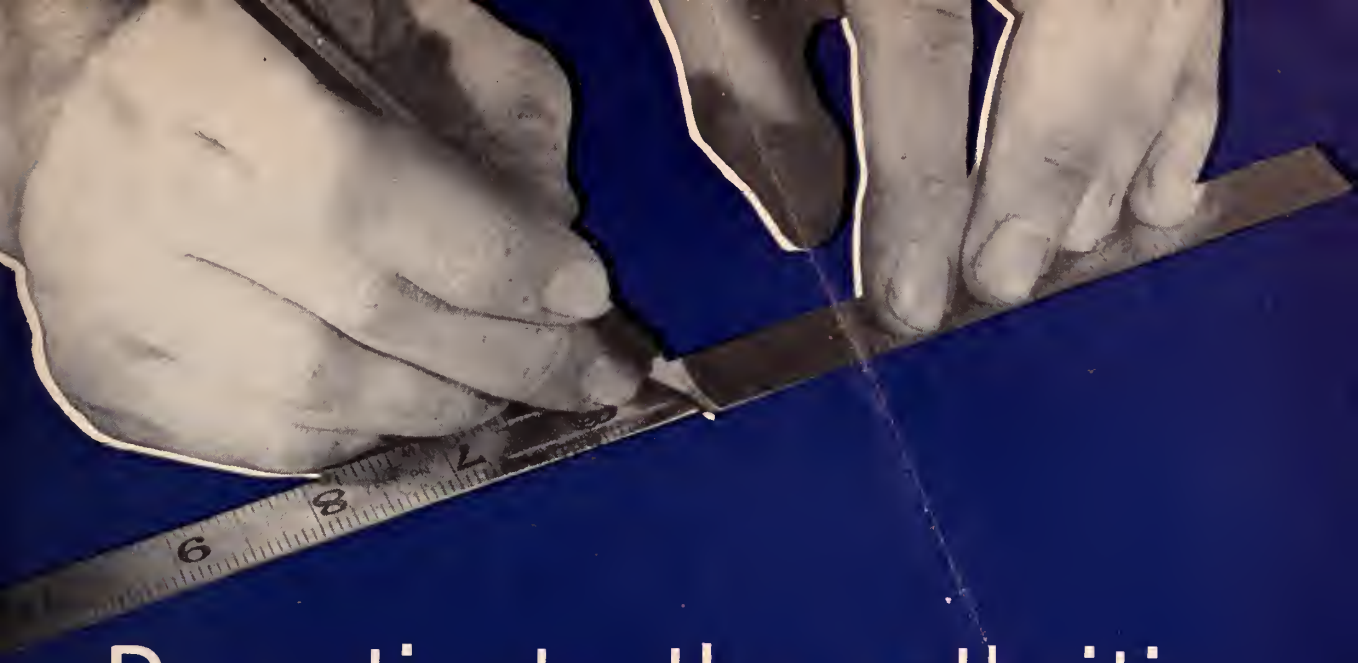
Theobromine	0.32 Gm. (5 grains)
Luminal	10 mg. (⅙ grain)
Purified extract of Rauwolfia serpentina alkaloids	**1.5 mg.**

DOSE: 1 tablet two or three times daily.

SUPPLIED: bottles of 100 and 500 tablets.

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MOST POTENT ANTI-RHEUMATIC *

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Four times more effective than hydrocortisone, and, on the basis of preliminary findings,[2,3] superior in potency even to prednisone (cortisone analog), STERANE is also relatively free of such hormonal side effects as edema, hypertension, or hypopotassemia.

Supplied: White, 5 mg. oral tablets, in bottles of 20 and 100. Pink, 1 mg. oral tablets, in bottles of 100. Both are deep-scored and in the distinctive "easy-to-break" size and Pfizer oval shape.

References: 1. Bunim, J. J., et al.: J.A.M.A. 157:311, 1955. 2. Forsham, P.H., et al.: Paper presented at First Internat. Conf. on Prednisone and Prednisolone, New York, May 31-June 1, 1955. 3. Perlman, P. L., and Tolksdorf, S.: Scientific Exhibit presented at A.M.A. Annual Meet., Atlantic City, June 6-11, 1955.

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*brand of prednisolone



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The Flavor Remains Stable down to the last tablet.

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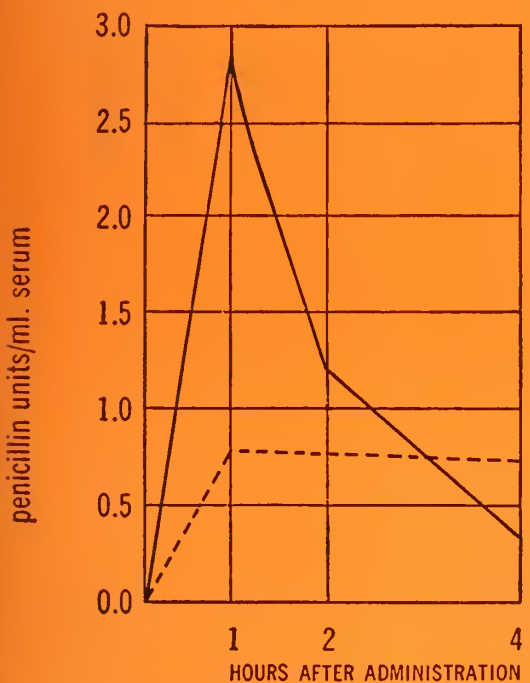
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WITH *INJECTION* PERFORMANCE

Now! A 500,000-unit tablet for higher, faster blood levels than from injected procaine penicillin



——— PEN·VEE·*Oral*, 500,000 units, one tablet, 19 subjects[1]

– – – – Procaine Penicillin G, 600,000 units, one injection, 10 subjects[2]

Supplied: PEN·VEE·*Oral* Tablets, 500,000 units, scored, bottles of 12; 200,000 units, scored, bottles of 36. Also available: BICILLIN®·VEE Tablets, 100,000 units of benzathine penicillin G and 100,000 units of penicillin V, bottles of 36.

1. Wright, W.W.: Personal communication.
2. Price, A.H.: Personal communication.

PEN·VEE·*Oral**

Penicillin V, Crystalline (Phenoxymethyl Penicillin)

Wyeth®

Philadelphia 1, Pa.

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better tolerated...
notably
hypoallergenic



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Better tolerated by all infants because the low fat content is uniformly dispersed by homogenization and is readily emulsified. Easy assimilation of Dextrogen is assured by its mixed carbohydrates which provide for spaced absorption.

Less allergenic because special heat treatment decreases the likelihood of protein absorption before reduction to amino acids.

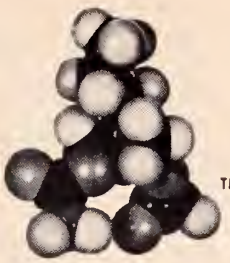
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Dextrogen is a concentrated liquid formula made from whole milk modified with dextrins, maltose and dextrose, and fortified with vitamin D. Provides all known infant nutrients except vitamin C. The cost of baby's formula is less than a penny per ounce.



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1. Selling, L. S.: J.A.M.A. **157:** 1594, 1955. 2. Borrus, J. C.: J.A.M.A. **157:** 1596, 1955.

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the original meprobamate—2-methyl-2-*n*-propyl-1,3-propanediol dicarbamate—U. S. Patent 2,724,720

DISCOVERED AND INTRODUCED by Wallace Laboratories, New Brunswick, N. J.
Literature and Samples Available On Request

Meat...

and the Value of Fat in Nutrition

Authorities in the field of nutrition no longer consider fat as an optional component of the diet. Evidence from the laboratory and bedside indicates that fat in small amounts may be looked upon as an obligatory constituent of a health-promoting diet.[1]

The far-reaching value of fat in nutrition has been amply demonstrated in laboratory animals in its pronounced effect on growth, on pregnancy and lactation, on nitrogen-sparing action, on work capacity, on time of sexual maturity, on the period of survival during fasting, and on ability to combat external stresses.[1]

Young animals fed a fat-free diet not only fail to grow normally, but develop hair and skin changes characteristic of "essential" fatty acid deficiency.[2] Fatty acids other than the "essential" fatty acids also appear to be necessary for optimal health. Animals fed "essential" fatty acids but no others do not grow optimally.

The value of fat in human nutrition was emphasized in a recent study[2] comprising 200 patients incapable of receiving adequate nourishment. For periods of 1 to 30 days, these patients were given supplementary fat alimentation by vein in the form of fat emulsion containing "essential" as well as other fatty acids. The result was typically a marked increase in weight and more positive nitrogen and potassium balances.

Meat, recognized for its high content of biologically valuable protein, B vitamins, and essential minerals, provides, in addition, substantial amounts of nutritionally important fat.

1. Deuel, H. J., Jr.: Newer Concepts of the Role of Fats and of the Essential Fatty Acids in the Diet, Food Res. *20*:81 (Jan.-Feb.) 1955.

2. Meng, H. C.: Preparation, Utilization, and Importance of Neutral Fat Emulsion in Intravenous Alimentation, in Najjar, V. A.: Fat Metabolism, Baltimore, The Johns Hopkins Press, 1954, pp. 69-92.

The nutritional statements in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago . . . Members Throughout the United States

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way in x-ray
is *dial-the-part* automation in Picker **Century II**



simple...

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no charts...

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here's all you do...

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on the big selector scale (inset here is a typical body-part "station").

set
its thickness
point the needle to the measured thickness of that part in the patient you're x-raying.

take
the radiograph
that's all there is to it. "Dial-the-part" automation takes it easy, gets it right every time.

anatomatic Century II

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ask your local Picker representative about the new "ANATOMATIC"; let him show you how it works, tell you how modest its cost, what a boon for you it may well prove to be.

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1 provides the antimicrobial activity of tetracycline

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STECLIN-MYCOSTATIN
(Squibb Tetracycline-Nystatin)

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Minimum adult dose: 1 capsule q.i.d. *Supply:* Bottles of 12 and 100.

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gives the arthritic patient more days of freedom from joint symptoms—in many patients the anti-rheumatic effect persists 2 to 10 times longer than after injection of hydrocortisone acetate. Its action is local and without systemic effect.

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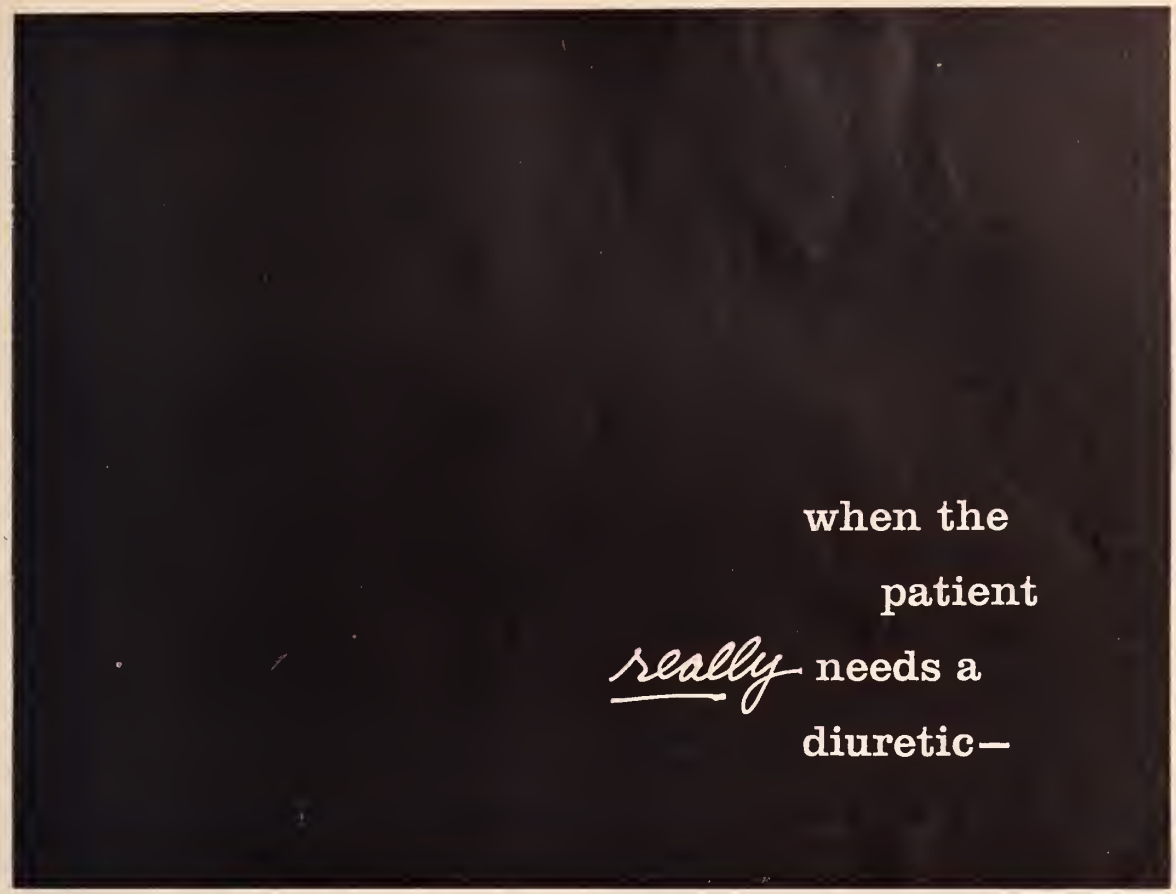
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But when cardiac decompensation—mild, moderate, or severe—is established, dependable and continuously effective diuresis—obtainable only with potent oral organomercurials—is a therapeutic necessity.

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BRAND OF CHLORMERODRIN (18.3 MG. OF 3-CHLOROMERCURI-2-METHOXY-PROPYLUREA EQUIVALENT TO 10 MG. OF NON-IONIC MERCURY IN EACH TABLET)

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*SYRUP OF 'ANTEPAR' Citrate brand Piperazine Citrate

Bottles of 4 fluid ounces, 1 pint and 1 gallon.

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Bottles of 100.

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Bumbalo, T. S., Gustina, F. J., and Oleksiak, R. E.:
J. Pediat. 44:386, 1954.

White, R. H. R., and Standen, O. D.:
Brit. M. J. 2:755, 1953.

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Brown, H. W.:
J. Pediat. 45:419, 1954.

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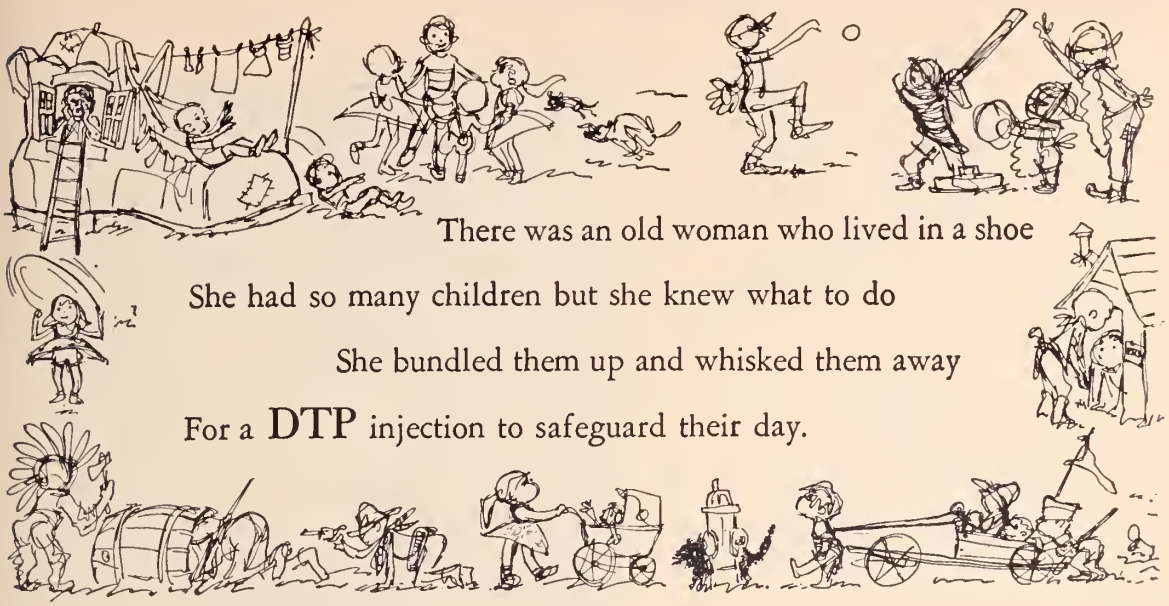
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Scientists of this area who are interested in hearing the discussions which will cover the fields of etiology, diagnosis and therapy are invited to attend the conference.

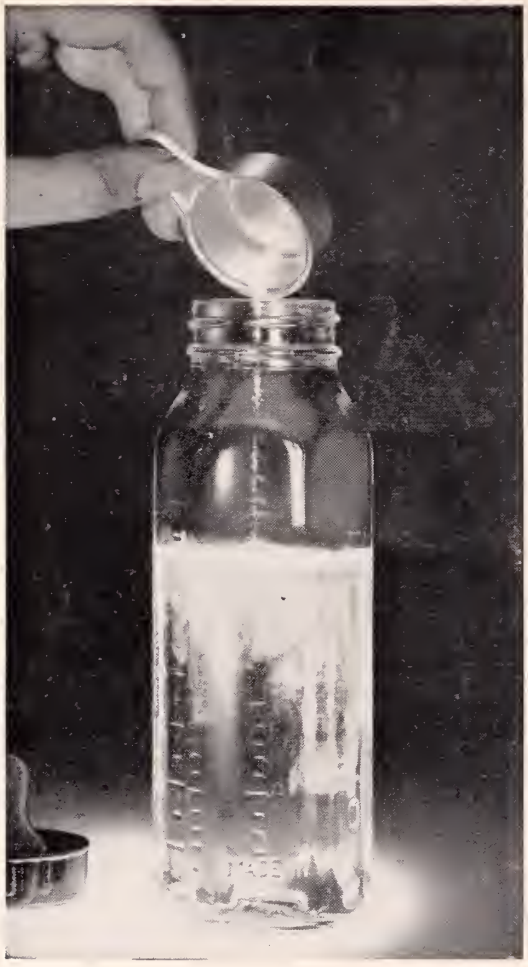
Further information on the meeting may be secured from the office of the American Cancer Society, 822 Perdido Street, New Orleans, Telephone MAgnolia 2029.

(See Medical News Section for further information)



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Grand Rapids physicians specializing in the field of research, surgery, cardiology, dermatology, pathology, ephthamology, urology, and public health presented testimony on the safety and effectiveness of fluoridation. The Director of the Grand Rapids Health Department reported that there has been a slight decrease in the death rate for heart disease, nephrites, intracranial lesions and cancer. He pointed out that the decrease is not necessarily a result of water fluoridation, but that it does refute the argument that water fluoridation contributes to an increase of these diseases.

The latest (January 1, 1956) figures available to the Health Department shows there are 22,082,304 persons in the United States now drinking fluoridated water.

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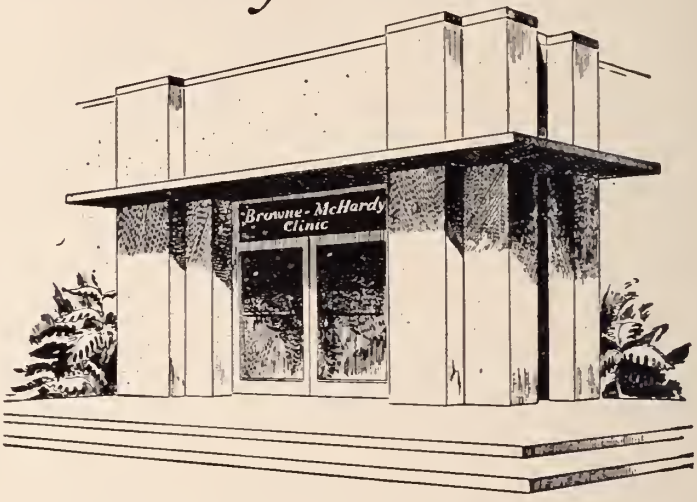
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1. Cronheim, G., and Toekes, I. M.; Comparison of Sedative Properties of Single Alkaloids of Rauwolfia and Their Mixtures, Meet. Am. Soc. Pharmacol. & Exper. Therap., Iowa City, Iowa, Sept. 5, 1955.

2. Moyer, J. H.; Dennis, E., and Ford, R.: Drug Therapy (Rauwolfia) of Hypertension. II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension, A.M.A. Arch. Int. Med. *96*:530 (Oct.) 1955.

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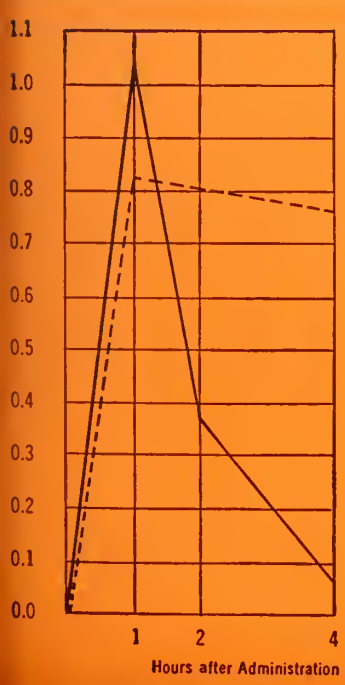
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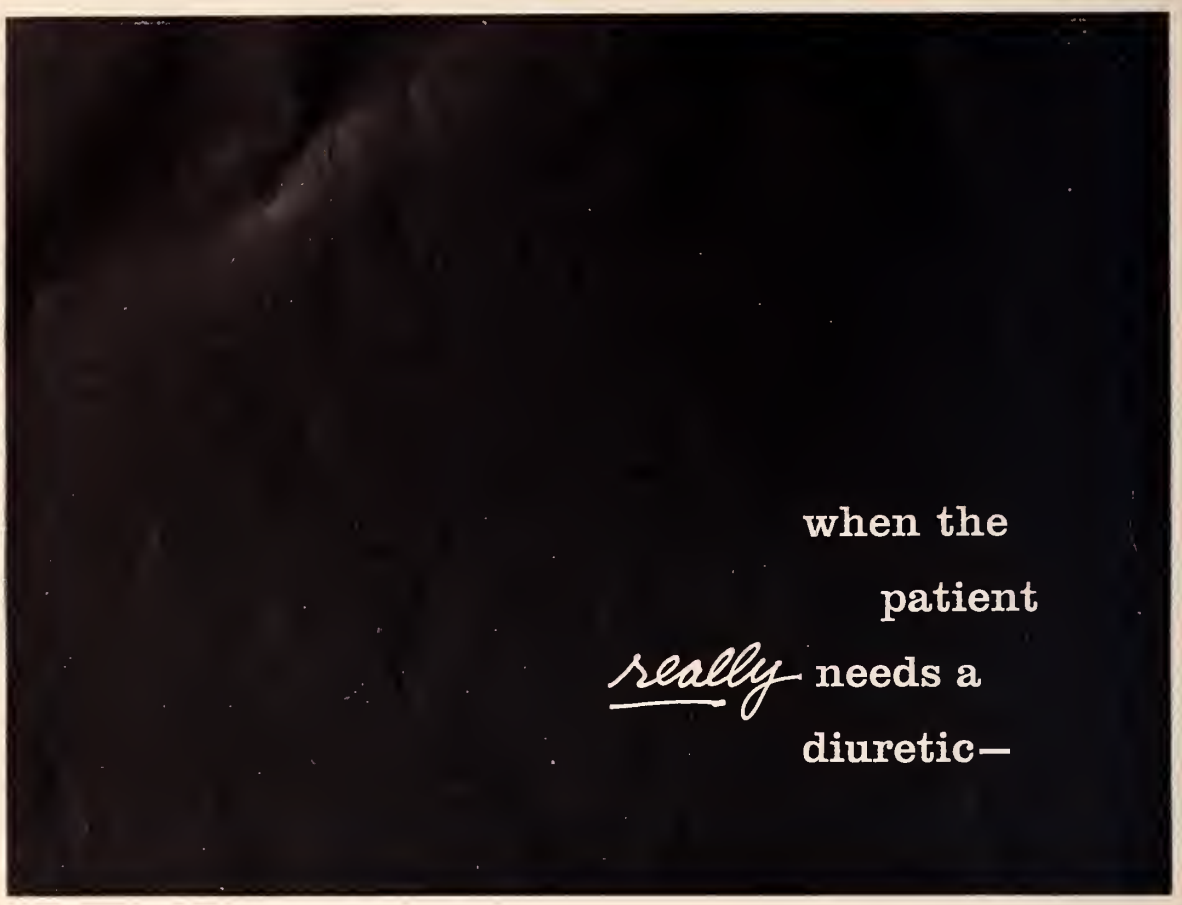
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THE SIGNIFICANCE AT THE PRESENT TIME OF THE DIAGNOSIS OF BIOLOGIC FALSE POSITIVE REACTION *

J. LOWRY MILLER, M. D. †
NEW YORK, N. Y.

The significance of the biologic false positive reaction is as yet an unanswered challenge to our medical generation. Our energies in yesteryear were devoted to unearthing and conquering the disease, syphilis. In more or less the last half century we have witnessed the relative conquest of syphilis, beginning with the discovery of the etiologic agent, *Treponema pallidum* by Schaudinn in 1905, and followed closely by the introduction of a test for syphilis by Wassermann, applying the principles of Bordet and Gengou. The use of arsenic by Ehrlich and, finally, the introduction of penicillin by Mahoney sounded the death knell for syphilis. It is interesting that what appeared to be a closed chapter should have yielded so much information in the past five years that it has forced us to change many of our previous concepts concerning syphilis.

The introduction of the treponemal immobilization test in 1949 by Robert Nelson,[1] working at Johns Hopkins, has largely been responsible for our recent increase in knowledge concerning syphilis. This test promised, and has proved to be, a specific test for syphilis. Without the TPI test, each patient with a positive STS, in the absence of clear cut evidence for syphilis, became a problem in diagnosis. With the TPI test, for the first time in medical history, we are able to separate accurately the biologic false positive reactor from the syphilitic. The first part of this paper will be a summary of what we have learned in the six years we have used the TPI test. The last part will be devoted to a discussion of the as yet unsolved significance of the biologic false positive reaction.

In 1949, we established a TPI laboratory in conjunction with our STS laboratory in the Department of Dermatology at Columbia University. Our clinical material has largely come from the Columbia Presbyterian Medical Center, including the Vanderbilt Clinic. For many years all cases of syphilis have been referred to us; and for that reason, we have available a wealth of material adequately studied throughout the years.

As many of you know, the TPI test uses *Treponema pallidum* as an antigen and is based on an antibody distinct from reagin, on which all of the many STS tests are based. *Treponema pallidum* has as yet not been successfully cultured. It is collected for the test from rabbit testicular syphilomas and kept in actively motile form in an artificial medium. In essence,

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* Presented at the Nineteenth Annual Meeting of the New Orleans Graduate Medical Assembly, February 27, 1956.

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the TPI test is based upon the fact that, in the presence of active complement, the motile treponemes are immobilized if demonstrable amounts of the antibody are present in a patient's blood or spinal fluid. As the test uses *Treponema pallidum* as an antigen and an antibody distinct from reagin, it should be specific. In the experience of all who have used the test, it has proved to be specific for the treponematoses, that is, syphilis, yaws, pinta, and bejel. In our opinion, the test is specific with a possible error of about 1.5 per cent.

In accurately interpreting the results of the test, one must always remember the opinions which have been repeatedly stated. These opinions are as follows:

1. If treatment for syphilis is given in the primary or very early in the secondary phase of syphilis, the antibody may never develop.

2. If treatment is given early in the course of syphilis, the test may become negative with the passage of time.

3. If no treatment is given, or if given late in the course of the disease, the test probably remains positive for the life of the patient.

It may be of interest to show a table from our early work, which was reported in detail in the J.A.M.A.[2] in 1952, when we were studying the reliability of the results of the TPI test. In Table 1 are presented the results of the TPI test in patients in whom syphilis had been diagnosed on evidence other than the results of the standard serologic test of the blood for syphilis. This evidence includes results of dark field examinations, clinically typical secondary syphilis, tabes dorsalis, positive reaction of the spinal fluid in the serologic test for syphilis, congenital syphilis with stigmata and dementia paralytica.

In the group of primary syphilis, the interval from the time of the diagnosis of the chancre to the time of the treponemal immobilization test varied from eight to forty-eight years. The four negative results occurred in patients who had been adequately treated when the chancre was present.

In the group listed as having secondary syphilis, the interval from the time of diagnosis to the time of the treponemal immobilization test varied from two months to twenty-one years. The results of the treponemal immobilization tests were negative in two patients both of whom have had more than adequate treatment at the time their secondary lesions were present. All of the patients with congenital syphilis with stigmata, neurosyphilis, cardiovascular syphilis and gummata had positive TPI tests.

A study of possible passive transfer of the antibody from mother to child revealed the information shown in the graph.[3] As can be seen, the antibody responsible for the TPI test persists longer than reagin in the babies' blood and may persist up to six months. This is similar

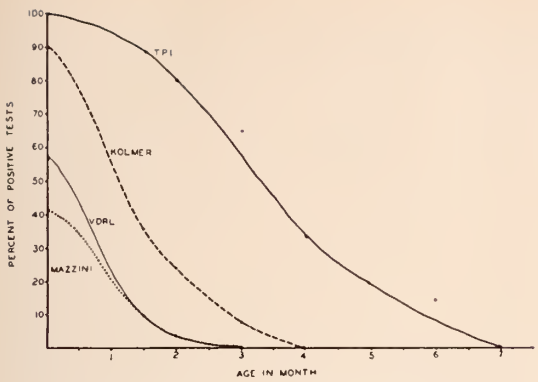
TABLE 1

RESULTS OF TREPONEMAL IMMOBILIZATION TESTS ON BLOOD OF PATIENTS WITH PROVED SYPHILIS *

Original Diagnosis †	No. of Patients	Results of TPI Test		
		Positive	Negative	Doubtful
Primary syphilis	30	24	4	2
Secondary syphilis	39	34	2	3
Congenital syphilis	10	10	–	–
Neurosyphilis	33	33	–	–
Cardiovascular syphilis	8	8	–	–
Gummas	3	3	–	–
Total	123	112	6	5

* This table was published originally in the article by J. Lowry Miller, et al: Treponemal Immobilization Test: Reliability of results for the diagnosis of syphilis, J.A.M.A. 49:987 (July 12) 1952.

† Patients are listed under the classification made at the time of diagnosis, which was made on evidence other than the result of the serologic test of the blood for syphilis. The treponemal immobilization tests were often made many years after the original diagnosis.



GRAPH 1 PERSISTENCE OF IMMOBILIZING ANTIBODY COMPARED WITH REAGIN IN NON-SYPHILITIC OFFSPRING FROM TREATED SYPHILITIC MOTHERS

Originally published in J. A. M. A. 154:1241 (April 10) 1954.[3]

to other natural antibodies such as herpes simplex. In interpreting the results of the TPI test in babies born of TPI positive mothers, one must remember this longer duration of the passively transferred antibody.

As our work progressed, certain facts at variance with our previous opinions became evident. The general opinion in 1950 was that of the various STS, the V.D.R.L. and Kolmer were more specific for syphilis and the tendency was to dismiss patients with a diagnosis of biologic false positive reaction who had positive Mazzini tests but negative V.D.R.L. and Kolmer tests. Table 2 illustrates how this

TABLE 2
REACTIONS OF STANDARD SEROLOGIC TESTS FOR SYPHILIS IN 1300 SPECIMENS FROM CASES OF SYPHILIS (TPI POSITIVE)

Test	Positive		Negative	
	No.	%	No.	%
Mazzini	1232	94.8	68	5.2
V.D.R.L.	1027	79.0	273	21.0
Kolmer	1017	78.2	283	21.8

did lead us to error as judged by the results of the TPI test. In 1300 specimens from patients with positive TPI tests, the V.D.R.L. and Kolmer were negative in approximately 20 per cent while the Mazzini was negative in 5 per cent. Viewed from this angle alone the Mazzini proved the better test.

However, the data contained in Table 3 must also be considered. Here the V.D.R.L. and the Kolmer were positive in ap-

TABLE 3
REACTIONS OF STANDARD SEROLOGIC TESTS FOR SYPHILIS IN 842 SPECIMENS FROM CASES OF BIOLOGIC FALSE POSITIVITY

Test	Positive		Negative	
	No.	%	No.	%
Mazzini	814	96.7	28	3.3
V.D.R.L.	487	57.8	355	42.2
Kolmer	474	56.3	368	43.7

proximately 60 per cent while the Mazzini was positive in 95 per cent of patients who had negative TPI tests. The close similarity of results of the V.D.R.L. and Kolmer tests is apparent. From the standpoint of the biologic false positive reactor group, the Kolmer and V.D.R.L. were wrong in 60 per cent while the Mazzini was wrong in 95 per cent of the patients. This higher rate of lack of specificity agreed with our former concept that the Kolmer and V.D.R.L were more useful in the diagnosis of syphilis, but the necessity for the TPI test is obvious, as all STS tests are too nonspecific.

We have also thought that a high titer in the STS was more likely to be syphilitic than a low titer. This is not always true in the light of the results of the TPI. This is shown by Table 4, in which

TABLE 4
COMPARISON OF V.D.R.L. FINDINGS IN 200 SPECIMENS FROM CASES OF BIOLOGIC FALSE REACTIVITY AND IN 200 SPECIMENS FROM CASES OF SYPHILIS

VDRL Titer	Biologic False Positivity		Syphilis	
	No.	%	No.	%
WP	62	31.0	82	41.0
P-1	64	32.0	52	26.0
P-2	36	18.0	34	17.0
P-4	18	9.0	12	6.0
P-8	11	5.5	10	5.0
P-16	7	3.5	4	2.0
P-32	1	0.5	2	1.0
P-64	1	0.5	4	2.0
	200	100	200	100

the V.D.R.L. titers of 200 specimens from patients with biologic false positive reactions are compared with an equal number from patients with syphilis. Patients with extremely high STS titers may prove to have negative TPI tests while those with

low STS titers may have positive TPI tests.

It early became evident that the TPI test was of no value in determining if more treatment was needed in a given patient. The test remains positive regardless of treatment unless it is given early in the course of the disease.

The purpose in presenting Table 5 is to show the great value of the TPI test in separating the syphilitic from the biologic false reactor. As will be noted, 45 per cent of these patients had been treated for syphilis, but did not have the disease, and 45 per cent of the patients who did have syphilis were not treated.

TABLE 5

COMPARISON OF RESULTS OF TPI TEST WITH DIAGNOSIS AND TREATMENT IN A GROUP OF PATIENTS FROM OUTSIDE PHYSICIANS STS POSITIVE OR WEAKLY POSITIVE IN ALL CASES

		Treated for Syphilis	Not Treated For Syphilis
TPI Positive	111	61	50
TPI Negative	166	75	91
	277	136	141

With the widespread routine use of the STS in hospital admissions, entrance into the Armed Forces, check-up in industry and by the medical profession at large, the number of positive STS will inevitably be a sizeable figure. With syphilis less widespread, it may be presumed that the biologic false positive reactions will be relatively larger in number. However, it must be emphasized that this diagnosis today should never be made unless a TPI test has been done.

The TPI test is expensive and requires critical and very careful work in the laboratory. Variations in the number of spirochetes obtained from rabbit to rabbit, the possible development of immobilizing antibody in the rabbits, the presence of adequate amounts of complement are all factors for which controls in the laboratory must be maintained. The test is also complicated by the necessity of using sterile techniques, by the presence of penicillin in many specimens and by the possibility of other nonspecific treponemocidal agents, such as the wide-spectrum antibiotics, or substances present in improperly cleaned collection tubes. For this reason, simpler, less expensive tests are needed. Such tests, now under investigation and using killed *Treponema pallidum*, include two agglutination tests, the immune adherance test, and the new *Treponema pallidum* complement fixation test developed by Portnoy[4] at Chapel Hill, North Carolina. He uses as an antigen a chemical fraction obtained by desoxycholate extraction of dead *Treponema pallidum* and performs a test similar to the Kolmer complement fixation test. The evidence to date seems to establish that the antibody used in the Portnoy test is distinct from the antibody which is the basis for the TPI test. It is necessary to use this test under carefully controlled conditions until its specificity is established. Our experience to date with this test makes us think that the test may approach the specificity of the TPI test.

From the summary of our experience which is in agreement with all those who have used the TPI test, it is apparent that it or a substitute specific test is a necessity in making the diagnosis of false positive reaction. The remainder of this paper will be devoted to a discussion of the little we have so far learned about the significance of the biologic false positive reaction. As you all know, there are two types of biologic false positive reactions, the temporary and persistent. We shall not discuss the temporary biologic false positive reaction except to say that the TPI test will quickly confirm the diagnosis and save the waiting period which is often a cause of nervous strain to the patient.

Table 6 shows the data which we published in J.A.M.A.[3] in 1954. The most significant finding in this table is the high percentage of biologic false reactions in the patients with acute disseminated lupus erythematosus. Coburn and Moore,[5]

TABLE 6
STS AND TPI RESULTS ON BLOOD IN PATIENTS ADMITTED FOR DISEASES OTHER THAN SYPHILIS *

Disease	No. of Cases	Pos.	Weak	Neg.	TPI Pos.	TPI Neg.	History of Syph.	Treat. Before TPI	Treat. After TPI
Acute Disseminated Lupus Erythematosus with L. E. cells	14	8	3	3	0	12 neg. 2 anti-compl.	0	4	0
Subacute Disseminated Lupus Erythematosus without L. E. cells	4	1	2	1	1	3	0	1	0
Discoid Lupus Erythematosus	4	4	0	0	2	2	0	1	1
Periarteritis	2	1	0	1	0	2	0	0	0
Subacute Bacterial Endocarditis	3	0	2	1	0	3	0	0	0
Sarcoidosis	10	8	1	1	9	1	2	4	5
Tuberculosis	5	3	2	0	5	0	2	4	1
Multiple Myeloma	4	1	0	3	1	3	0	0	0
Diabetes Mellitus	4	3	1	0	1	3	1	1	0
Cirrhosis of Liver	6	2	3	1	2	4	0	2	1

* This table was published originally in the article by J. Lowry Miller, et al: Studies with treponemal immobilizing test, J.A.M.A. 154:1241 (April 10) 1954.

Rein and Kostant,[6] Haserick and Long,[7] and others have reported that this disease was thought to be responsible for a biologic false positive reaction. Nine of our 11 patients with positive STS had negative TPI tests and the remaining two patients had anticomplementary tests. It has been noted previously that anticomplementary reactions are found in this disease. Coburn and Moore[5] have reported high levels of gamma globulins to be a constant characteristic in their cases of lupus erythematosus. Davis and coworkers[8] have shown that gamma globulin is anticomplementary. It has been noted in our laboratory that an unknown factor or factors, in the patients with acute lupus erythematosus uses more of the added complement in the TPI tests than in specimens from other diseases.

The eight patients with positive serologic tests in this group in the table were persistent false positive reactors. Four of these patients had been treated because of the positive serologic tests before the onset of symptoms of acute lupus erythematosus. No change in the serologic tests resulted. The positive serologic test was known to have been present for twenty-four years in the first case, six years in the second, and four years in the third and fourth. It is interesting to note, in the case in which a positive serologic test was present for twenty-four years, that it had been found when the patient was 3 years of age, at which time she was treated with arsenic and bismuth. Her mother had been treated because of a positive serologic test before the patient was born. The mother's serologic test is now negative, but the treponemal immobilizing test is positive.

A second patient had a similar history. She was seen at 8 years of age with Sydenham's chorea and a positive serologic test. Both parents had strongly positive serologic tests. The parents and the patient were treated with arsenic and bismuth. The patient was 33 years old and had two healthy children, 9 and 2 years of age, both with negative serologic and treponemal immobilizing tests. The patient's treponemal immobilizing tests have been negative twice and the serologic tests repeatedly positive. The patient's mother has positive serologic tests, and the treponemal immobilizing test is positive. Neither patient shows signs of congenital syphilis. It is impossible to determine with certainty if these

persons had had biologically false positive reactions for all these years or positive treponemal immobilizing tests had become negative when treatment was given early.

Some observers have reported that sarcoidosis is one of the diseases outstanding among the conditions so far identified in a substantial proportion of biologic false positive reactors. Our findings have not borne this out. Of 102 patients with sarcoidosis established by biopsy, clinical, and laboratory findings, 14 had persistent positive serologic tests. Ten of the 11 patients with persistently positive serologic tests had positive treponemal immobilizing tests. In our opinion one should be very hesitant in making the diagnosis of a biological false positive reaction in sarcoidosis.

The group of biologic false positive reactors which we have reported were gathered from a hospital population who had been admitted for illness of greater or lesser degree. More recently we have been studying a group of patients who were collected largely because of a positive STS with negative TPI test but apparently not ill. In a group of some 600 patients falling into this classification 75 have been studied thoroughly.

The following tests have been performed on all 75 cases of persistent biologic false positive reaction: Complete blood counts, urinalyses, sedimentation rates, protein partitions, cholesterols and esters, Coombs' test, cold agglutinations, alkaline phosphates, LE preps, brucella agglutinations, cephalin flocculations, thymol turbidities, paper electrophoreses, heterophile antibodies. In this carefully sudied group, one or more of the tests performed have been positive. One of the most frequent findings is a positive cephalin flocculation or a positive thymol turbidity. Moore and Lutz [9] also found this phenomenon. They were unable to demonstrate any evidence of liver damage and concluded that the same mechanism responsible for the positive STS was also responsible for the positive cephalin flocculation and positive thymol turbidity. We have examples of women who with each pregnancy develop positive STS which disappear between pregnancies.

To date from this group, the percentage of patients developing serious illness has been small. However, the potential danger of serious future disease in those with persistent biologic false positive reaction is real. A pattern of recurrent minor signs and symptoms such as unexplained fever, transitory joint pains, should be taken with much more seriousness in the patient with a persistent biologic false positive reaction. At the present time it appears that systemic lupus erythematosus is the disease most of these patients will develop if they eventuate into serious illness.

We have not had the opportunity of studying patients with leprosy in this study. Leprosy has long been known to cause persistent biologic false positive reactions in about 60 per cent. It would be interesting to perform the additional tests to see if we find a difference in the degree of cephalin flocculation, thymol turbidity positivity in patients with leprosy in whom the STS is positive as compared with those with negative STS.

In conclusion I should like to emphasize that the TPI test has proved specific and that it, or a simpler test of the same type, is a necessity in the diagnosis of biologic false positive reaction. If this reaction proves to be of the persistent type, then the physician must observe the patient and carefully consider minor symptoms, especially those which recur.

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THE IMPORTANCE OF THE TEAM APPROACH TO THE REHABILITATION OF CLEFT PALATE CASES

JEANETTE K. LAGUAITE, Ph.D. *
NEW ORLEANS

Because of the variety of problems presented by the person with a cleft palate, no one specialty can attempt to deal with them all. Those who are interested in the problem realize that a cleft palate is not just a "hole in the head" to be closed up in any fashion, or just a speech defect, or just a malocclusion. All of these conditions are related and interdependent, along with the emotional and intellectual aspects. Hence, the multiphasic, or team approach has been developed and is gaining wide acceptance as the most productive way of rehabilitating these patients.

In 1816, von Graefe performed the first staphylorraphy by cauterizing the margins and using sutures to approximate the tissues. Previously, the occasional cases of cleft lip and palate mentioned in medical literature were treated by elaborate devices designed to restore the missing parts. After von Graefe, daring operations became more frequent and developed around three methods, i.e., median suture, compression, and flap techniques for closure of the clefts. Modern surgical techniques nearly all represent some modification of the median suture procedure introduced by von Langenbeck in 1861.

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With the advent of modern dentistry in the middle of the nineteenth century, a new interest in prosthetic appliances was aroused. The failure of much of the surgery served as a spur to devise various types of prostheses and different means of retention. At the same time surgeons were busy exploring various operative techniques. Most of the early prosthetic work was done to correct the results of surgical failures rather than as a preferred procedure.

As more and more interest in the overall problem has been evinced by oral and plastic surgeons, dentists, orthodontists, prosthodontists, and speech therapists, the value of a united effort has become more and more apparent. Recent study and research in growth patterns has led to a new evaluation of the total treatment of cleft palate. The many questions which arise in trying to find the most suitable treatment for each case can only be answered by grouping services and correlating information. Then each specialist can render the fullest value of his particular field. The team approach, therefore, implies much more than simply a number of people looking at one individual. A team should be composed of members who can share in the group experience for their own enrichment as well as that of the patient. Although each member comes to the team as an individual representing a different discipline, he should be able to give of his skill and to understand the contributions of his teammates as they work toward the common goal of rehabilitation.

T. M. Graber,[2] in his discussion of the "Changing Philosophies in Cleft Palate Management" pictures the cleft palate team as functioning in a manner illustrated in Figure 1. Cooper[1] likens the cleft palate team to a wheel in which each member of the team represents a spoke and bears the burden of treatment at different times. (Figure 2) This analogy stresses the interdependence and the cooperation which must exist among the members for the team to accomplish maxi-

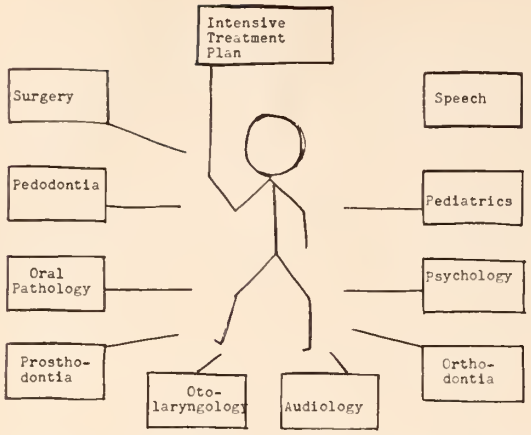


Figure 1. The essential elements for complete cleft palate rehabilitation. (From Graber, T. M.: Changing philosophies in cleft palate management, J. Pediat. 37:400 (Sept) 1950).

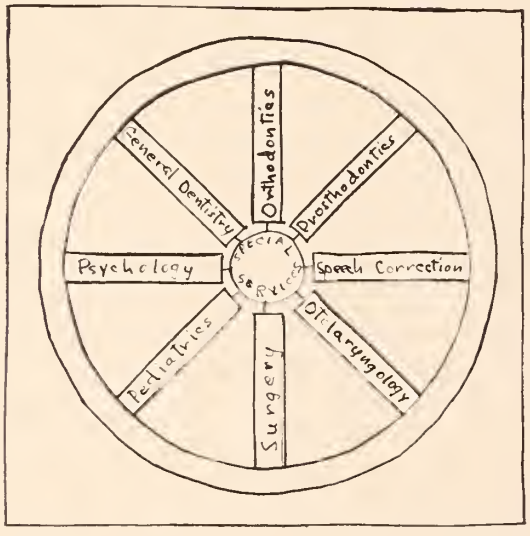


Figure 2. Services in a co-ordinated program. Other services to be added as need arises. (From Cooper, Herbert K.: Integration of services in the treatment of cleft lip and cleft palate, J. Am. Dent. A. 47:27 (July) 1953.

mum results. If one discipline dominates the team, or if another is not interested and fails to do his share, then the wheel will be lopsided and the team loses its effectiveness.

The essential services are those of pediatrics, surgery, dentistry, orthodontia, prosthodontia, speech therapy, otolaryngology, psychology, and social service. Other services are added as the need arises. Each member of the team has a peculiar responsibility on the team depending upon his specialty.

PEDIATRICS

The pediatrician is in the position of being able to guide the parents as soon as the baby is born. It is a severe shock to the parents to see a baby with a cleft lip and/or palate and to know that they have produced a malformed child. Their first reaction is usually one of despair, "Why did this happen to us?", followed by one of guilt, "What did we do?"

The manner in which the pediatrician handles these attitudes and reactions is all-important in the later adjustment of the parents toward the child and consequently in the adjustment of the child himself toward the handicap.

The pediatrician can steer the parents' thinking toward the positive aspects of what *can* be done rather than letting them dwell on the negative questions of what had not been done. He can reassure them that, cosmetically, the baby can be provided with a normal facial structure, and functionally, with adequate oral structures for speech and nutrition. It is the responsibility of the pediatrician, therefore, to acquaint the parents with a cleft palate team or with whatever agencies or resources are available in the community for cleft palate rehabilitation.

The child with a cleft palate and particularly one with both lip and palate cleft presents feeding problems with which the pediatrician must be prepared to cope. Since lip surgery is usually not done until the child has at least regained its birth weight and gives evidence of being a healthy baby, then it is very important that the baby's feeding be carefully supervised. Nutritional factors assume larger proportions in the care of the cleft palate child because of the surgery which most of them must undergo.

SURGERY

When a child has both cleft lip and palate there is not much controversy concerning the surgical closure of the lip. This procedure is usually carried out as soon as the baby is judged strong enough. Normally this is about the third or fourth month. Early closure of the lip is de-

sirable for several reasons. First, it improves the appearance of the baby. The initial shock and disappointment of the parents is greatly alleviated after the baby's face begins to assume a more normal contour. Although secondary operations to improve the shape of the lip and nose may be necessary, they are seldom emergency measures.

Secondly, the feeding problem presented by the open lip is helped by having the lip line made intact. The baby is now capable of more normal sucking and swallowing movements.

Thirdly, the molding influence of the lip and cheek movements can help to establish the proper shape and contour of the upper dental arch by maintaining the proper position of the divided maxillae and thus encourage the teeth to erupt in their proper location.

Surgery on the palate is another question which can best be answered through the team approach. As indicated earlier, the traditional treatment of cleft palate was always by surgery. However, because that has so often been unsuccessful, many workers have felt that a re-evaluation of surgical procedures, and especially of the timing of surgery, should be undertaken.

With the help of the orthodontist, prosthodontist, and speech therapist, the surgeon can better decide how and when to operate. According to Slaughter,[3] surgery can do one of two things:

1. It can aid in directing natural growth processes through the establishment of muscle balance across the defect; or

2. It can grossly interfere with the blood supply, result in introduction of abnormal amounts of scar tissue or destruction of growth centers.

The surgeon needs to be fully aware of the growth potentials of the individual. The following criteria are now being used to judge whether or not a palate should be closed surgically, and if so, at what age.[3]

1. Adequacy and vitality of tissue.

2. Spatial configuration of anatomic segments of the cleft, i.e., width and shape of cleft.

3. The relationship of the palate to contiguous anatomic structures in the pharynx.

When each patient has been evaluated in terms of the above considerations, it will be seen that there can be no hard and fast rule as to when to operate, when to use prosthesis, or when to use a combination of both. Each case must be judged separately and the final decision rests with the team and not with the surgeon alone.

DENTISTRY

Good general dental care is even more important for the cleft palate individual than for the average person. The successful use of a prosthetic device often depends upon the amount of retention which can be provided. Teeth should be cared for so that they do not become carious or the gums diseased.

The influence of the deciduous teeth upon the eruption of the permanent teeth and the consequent development of facial structures cannot be over-emphasized. The idea that the baby teeth did not need to be filled and retained as long as possible is no longer tenable. There is a direct relationship between the size and shape of the dental arch and the health of the baby teeth. Good habits of oral hygiene are a necessity for the cleft palate patient and must be instilled early and followed faithfully.

ORTHODONTIA

The orthodontist must have a thorough knowledge of growth factors and must know when and what types of appliances to use to achieve the maximal results in alignment of structures. He aids the surgeon or prosthodontist by retaining the parts in the desired position or by repositioning structures so that they can work more effectively.

Through orthodontia it is possible to restore teeth to their proper positions and to maintain them in their correct relationships. This usually results in a much im-

proved cosmetic effect. Also this straightening process often enables the child to achieve better speech. The contribution of the orthodontist to the team cannot be exaggerated.

PROSTHODONTIA

Prostheses and speech appliances were formerly viewed as a last resort after surgical failure. Then some workers developed the philosophy that prosthesis was the method of choice and that surgery should never be used.

It is now a generally accepted fact that surgery and prosthesis offer complementary procedures for the total rehabilitation of the cleft palate person. In cases where tissue is inadequate and a poor surgical result is an almost certainty an appliance may be indicated from the beginning. Sometimes the surgeon can repair the hard palate but is unable to construct a functional soft palate. Then a speech appliance can be used to improve articulation. Young children may be fitted with a training appliance until they have reached the optimal age for surgery.

The function of the prosthodontist is to supply missing parts and restore normal structural relationships wherever possible. When a person has a markedly underdeveloped maxilla and, as a result, a marked malocclusion, the prosthodontist can do much to improve appearance and function. A complete denture can be fashioned to fit over the patient's own teeth to fill out the lip contour and to establish normal occlusion. The cosmetic effect and the better dental health of the patient are material assets to his personality.

In cases where surgery is either not indicated or has been attempted and has not been successful, adequate velopharyngeal closure for speech can be achieved by a speech appliance. The speech bulb may be all the person needs or it may be part of a partial or full denture. In the latter case, the task of providing good retention will tax to the utmost the ingenuity of the prosthodontist.

SPEECH THERAPY

The speech therapist has several duties on the team. The most obvious one is the evaluation of the speech. In some cases, defective speech is due to causes other than the cleft and the therapist must be able to differentiate these factors. The degree of nasality on both vowels and consonants, the use of the tongue and lips, the substitutions of sounds must all be noted.

The therapist then must evaluate the structures in the light of speech. Is the velopharyngeal closure adequate? Are there barriers to good tongue movement, such as orthodontic appliances? All these points must be assessed so that the advisability of further surgery, further orthodontia or other procedures may be decided upon.

With a very young child who has not yet begun to talk, the speech therapist assumes the role of a counsellor to the parents. Ways in which to foster normal speech development and what to expect from the child in the way of speech attempts are discussed. As the child begins to talk the parents are given specific suggestions for working with him at home until formal speech therapy is indicated.

Depending upon the type of services available in the community, the speech therapist may do the actual therapy with the patients or only serve as a consultant on the team. Regardless of how it is managed, however, almost all cases, whether treated by surgery or prosthesis, will need some type of special training.

OTOLARYNGOLOGY

It has been shown repeatedly that children with cleft palates are more susceptible to respiratory infections than normal children. Also, more of these children have ear infections and accompanying hearing loss than others. This may be due to the greater number of infections which travel from the nasopharynx to the middle ear by way of the Eustachian tube. It is also possible that the cleft causes an abnormal functioning of the muscles responsible for the opening of the tubal orifice.

Any interference with the necessary aeration of the middle ear leads to serous otitis media, retracted ear drums, and other pathologies responsible for a conductive hearing loss. These children need careful periodic check-ups to reduce the incidence of middle ear pathology.

Since much middle ear involvement is caused by blockage of the Eustachian tube with hypertrophied lymphoid tissue, the otolaryngologist is faced with a problem in advising tonsillectomy and adenoidectomy. In many cases the velopharyngeal closure which provides adequate speech is achieved because the palate rests against a large pad of adenoid tissue on the back wall of the pharynx. Removal of this adenoid pad may cause serious consequences speechwise. The otolaryngologist must be in a position to evaluate all these factors and to know in which cases operation is clearly indicated, how much tissue to remove, and the possible consequences to speech.

SOCIAL SERVICE

The social worker is an indispensable member of the team, serving as a liaison between the team and the patient or his family. The social worker interprets to the patient the decisions as to the type of treatment, steps in the program, and other questions concerning the medical aspects.

The patient's problems as to finances, travel to obtain treatment, and other obstacles, can be worked out by consultation with other agencies in the community. The social worker can help to plan with the patient so that the proper scheduling of visits and the correct timing can be carried out with as little inconvenience as possible.

The social worker can also help the team to plan by informing them of the attitudes and feelings of the family and the ability of the patient to co-operate and carry out recommended procedures.

PSYCHOLOGY

In a total rehabilitation program for any patient, the mental and emotional factors are of vital importance. It is necessary to know the capacities of the person so that a realistic policy can be pursued. Sometimes a person, because of intellectual capacity, economic, social, or emotional influences, is incapable of sufficient co-operation to make a prosthetic device practical. Therefore, surgery may be a better choice for him, although structurally it is not the ideal one.

Delayed speech in children is not necessarily due to the cleft lip and/or palate per se. It may be caused by the traumatic emotional shock of early surgery and hospitalization, by feelings of guilt and rejection on the part of the parents, or by mental retardation, to mention only a few possibilities. A thorough investigation of all aspects by a trained clinical psychologist is invaluable in total rehabilitation.

The psychologist can be of value, not only in testing, but in counselling and guidance both with the patient and the family. A realistic, objective attitude to the handicap, an acceptance of the limitations of therapy, and a healthy emotional atmosphere can be as helpful as good surgery or a perfect appliance.

SUMMARY

The value of such a team approach will be shown by methods which produce better speech, less personality maladjustment, improved cosmetic effects, and more understanding and co-operation from the patient and his family. It also provides fruitful information for the research which is still needed to answer many of the questions concerning the etiology and treatment of cleft lip and/or cleft palate.

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HEMIPLEGIA FROM A BLACK WIDOW SPIDER BITE

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The bite of the black widow spider is a fairly frequent occurrence in the southern states, more often seen in rural areas

than in the metropolitan areas served by the usual university hospital. A minimum of scientific information is given the average medical student on the clinical syndrome produced by the bite and its treatment, probably due to the decreased incidence of bite in the metropolitan areas. Usually the doctor's first contact with the problem is as an intern or resident in a charity hospital when he is forced to call on his limited knowledge and skill to treat the unhappy victim.

The fact that these bites are not as innocuous as may be supposed is borne out by reports in the literature of at least 16 deaths in the United States.[1]

This paper is presented to record a case of black widow spider bite followed by partial hemiparesis, marked speech aphasia, bladder retention and stupor.

CASE HISTORY

A 37 year old white male was bitten on the dorsal surface of the left forearm on October 22, 1955, while gathering pecans in his pasture. The bite caused only a mild sting and the patient killed the spider and placed it in a pocket matchbox. In approximately twenty minutes he began to have deep, cramping-type pains in his left forearm, in the upper portion of the arm near the shoulder and, a few minutes later, in the substernal area. When the patient was seen approximately one hour and fifteen minutes after the bite he was still suffering the same pains, severe by this time, and also pain in the epigastrium of a constant cramping nature.

Physical examination was entirely negative except for a 4 by 4 cm. area of erythema at the site of the bite on the left forearm, and moderate abdominal rigidity without tenderness. He was immediately given 10 cc. of calcium gluconate, 10 per cent, intravenously, with no relief. He was given gr. 1/6 morphine and 30 mg. benadryl, intramuscularly. At the end of an hour the patient had vomited twice, was in severe pain, and was beginning to get mildly apprehensive. He was given more morphine, and 80 U ACTH gel i.m. Nausea and epigastric pain continued. For the next forty-eight hours the patient was never completely free of pain. He developed marked abdominal muscle rigidity but no tenderness. Bowel sounds remained normal throughout. He vomited even water, so infusions were necessary for this period. Calcium gluconate was given i.v. on four occasions, without benefit. The pulse remained from 40 to 60 per minute. By the third day the pain in the arm and chest had subsided, but generalized abdominal pain persisted and there was pain in the hips and thighs. At the end of the third day he was having difficulty voiding. The prostate was normal on examination, but extremely difficult urination continued for the next forty-eight hours.

By the fifth day the patient was feeling fairly well and complained only of pain in the ankles and feet. He was discharged. During this hospital stay he was always cooperative, alert, and at only one time during the first hours did he show apprehension. The spider, which he had brought to the hospital with him, was a source of curiosity to the nurses, orderlies and aides, and the patient was jovial and talkative during this time when he was not in too great pain. He received numerous injections of morphine and demerol and benadryl, but none seemed to give relief.

The first day the patient was home, his wife noticed him becoming progressively quiet and withdrawn. By night he appeared definitely confused, though he was cooperative and was oriented as to time and place. By bedtime he spoke only when spoken to, and answered questions and obeyed commands in an automatic fashion, showing a completely flat emotional response. By the next day, when he was brought to the office, he limped markedly, could walk only with help, and showed left facial weakness. General physical examination revealed a left facial muscle weakness, tongue deviation to the right, decreased pain sensation in the left face and extremities, and weakness of the left upper and lower extremities. Deep reflexes were hypoactive on the left, as was the cremasteric reflex. The umbilical reflex was negative bilaterally. Babinski and Hoffman were negative. Eyegrounds were negative, and pupils were equally dilated and not symmetrically round. They reacted sluggishly to light. Accommodation was normal. There was ecchymosis over the left face which his wife said developed while he was shaving. Rumpel-Leede test was negative. Spinal tap was as follows: Opening pressure, 18 cm.; normal dynamics; white cells, none; RBC, 4/cu.; protein, 46 mg.%; sugar, 92 mg.%; Wassermann, negative; colloidal gold, 000000000. The CBC, urinalysis, bleeding time, prothrombin time and platelet count were normal. Lee and White coagulation time, 9 min., 50 sec.

The patient was started on a slow drip of ACTH, 15 U to 500 cc. normal saline, and was given benadryl. He showed no restlessness and stated he had no pain when asked. He ate and drank when told, and slept during the night. Within twenty-four hours he was improved slightly but had developed difficulty with his speech. He at first could not think of words, and later stuttered profusely. After seventy-two hours he began to show emotional response and his facial paralysis had completely disappeared. The petechiae cleared within forty-eight hours. ACTH was continued after the first day in the form of gel. Blood pressure remained a normal

125/80 throughout both hospital stays. After one week the patient was well, with the exception of occasional stuttering. The muscle strength in his left extremities returned; his personality returned to normal; and he denied any unusual feelings. His wife stated he appeared to be perfectly all right. On questioning, he had complete amnesia of his return to the hospital, the spinal tap, examination, or any events for approximately a forty-eight hour span.

THE SPIDER

The female black widow *(Latrodectus mactans)* or hour-glass spider has a body one-half inch long and is identified by its jet black color and the very characteristic scarlet red "hour-glass" mark on its ventral surface. The male spider does not have the red mark and its bite is of no consequence. The habitat is from southern Canada to Chili, but it is found predominantly in the southern United States, Mexico, and Central America. The spider lives in dark, secluded corners, under woodpiles, under houses, or in dark, infrequently used closets. The spider is timid and will not bite unless endangered. Many times it has been accidentally found under lumber or trash where children have been playing daily for months. Bites usually occur when the victim inadvertently puts his hand or foot under the cover protecting the spider's hideout. Often the bites are on the male genitals, occasioned by spiders living on the underside of an outdoor privy seat.

The venom is a toxalbumin, proved to be a neurotoxin similar to the venom of the cobra. According to Faust [2] it is one-third as toxic as rattlesnake venom.

THE CLINICAL SYMPTOMS

The actual bite is only slightly painful and is described like the sting of a small bee. In fifteen to twenty minutes the patient notices mild swelling and redness in the area, and deep pain radiating up the extremity. This can be rapidly followed by precordial pain, weakness and, later, deep pain in the extremities and severe abdominal cramps simulating at times an acute abdomen. It can last from one hour to several days. It should be emphasized that the sting is sometimes of such minor nature that no connection will be made between the bite and the ensuing cramps. Many cases of prostration and shock have been reported; convulsions have been reported as common in children;[3] and one case of toxic myocarditis with definite EKG changes is recorded.[4] An unusual form characterized by extreme hypertension and albuminuria similar to eclampsia is reported and well authenticated.[3] A local skin reaction termed cutaneous arachnoiditis is reported in which there is a gangrenous slough of skin at the site of the bite.[5] Vague references are made in the literature to coma and neurological changes, but I have been able to find no reference to a transient hemiplegia as described in this case.

TREATMENT

Intravenous calcium gluconate or 2 cc. of 50 per cent magnesium sulphate are most often given as a successful treatment. This patient got no apparent relief from four such injections. Usually one gets thirty minutes to one hour relief from one injection. Neostigmine and phisostigmine are found by some to be satisfactory and by others to be useless.[6, 7] Curare has been proposed and tried with some relief of the severe muscle spasm and pain.[8]

A specific antivenin prepared from horse serum by Sharp & Dohme is reported by those that have used it to be extremely satisfactory,[9] giving complete relief in thirty minutes to one hour.

Narcotics and the usual analgesics have little effect on the symptoms. ACTH or cortisone is of questionable value.

SUMMARY

1. A case of black widow spider bite is presented which, in addition to showing the usual symptoms of extreme pain and muscular rigidity, developed a transient left hemiplegia and toxic psychosis.

2. Black widow spider bite syndrome and treatment are discussed.

3. Spider antivenin is apparently the most satisfactory treatment presently available and should be given when possible.

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THE USE OF RESERPINE IN THE TREATMENT OF DISTURBED GERIATRIC PATIENTS

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The medical profession today recognizes, but has not fully accepted the challenge presented in the care and the treatment of the geriatric patient. Death rates from the chronic, noninfectious, degenerative diseases have increased steadily in the last half century. Contrariwise, the chronic infectious disease death rate has decreased rapidly. This being the situation, the progressive increase in the number of geriatric patients in future years will be dependent upon the above trends and other factors which all point to longevity.

The problem is further complicated by the disinterest of the busy general practitioner in treating the chronic geriatric case, the tendency of families to reject their members who have grown old and useless, and also the shortage of beds in hospitals, psychiatric institutions, nursing homes, domiciliaries, and the lack of the intermediate type hospital where the elderly and ill patient may receive a type of medical service between that required by the acutely ill and that available in a domiciliary. It has been the all too prevalent policy of families and physicians to select a bed for the elderly patient, who is showing some signs of confusion, disorientation, and restlessness, in a psychiatric hospital. Nothing could be more unfair to the individual or to the psychiatric hospital. The senile, mildly confused and disoriented geriatric case needs excellent medical care and not rejection by society. After all, it has often been said that the geriatric patient is a walking medical museum. Therefore, he or she should be a challenge to the physician rather than just a "senile old fuddyduddy" to be rejected by the profession and society. Perhaps some of the most difficult problems confronting those treating geriatric patients; namely, the unrest, the agitation, the feeling of rejection, the mild to moderate confusion, the change in sleep pattern and even the psychotic behavior so often seen in the elderly, may be ameliorated with the advent of the new "tranquilizing" drugs. However, evaluation of these drugs is necessary so that the most efficacious medication can be chosen instead of the overrated, smartly advertised panacea.

At the present time 10 per cent of the Veterans Administration average daily hospital patient load consists of patients 65 years of age or over. Thus, with an average daily patient load of approximately 110,000, the Veterans Administration Hospitals have the care and treatment of approximately 11,000 geriatric cases. Five hundred eighty-four thousand veterans now are 65 years of age, but five years hence the number is expected to exceed 1,780,000. The Veterans Administration has a many-sided scientific attack in progress with relation to this problem. The attempt is being made to use all resources to give adequate care to this large group, not only from a medical, surgical and therapeutic viewpoint, but with sociological, economical and other factors considered. The social worker, the psychiatrist, the physical medicine department, the nurses, the hospital aides, all contribute to the therapeutic milieu. The social worker, for example, uses the accepted principle that these older patients respond better at home or in therapy centers near their homes, relatives and friends; hence, the family must be drawn into the picture again and given an under-

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standing of the patients' condition and the responsibility which they must reaccept for a member of their family.

Study and observations in the use of reserpine in geriatrics in this psychiatric hospital are not wholly on our own observations. It is only one phase of the various studies that are being done. The matter is being presented in the form of simple observations, special effort being made to circumvent excessive scientific and statistical data. The results obtained with patients in general practice and outpatient treatment may not be as dramatic as those experienced in the hospital where the environment is well controlled. Naturally, the more disturbed the patient, if he is to respond, the more noticeable will be the change. In general practice the physician must be alert to the patients with only early mental changes and extremely mild manifestations, representing the ideal time to institute therapy. General interest has been mainly in the use of reserpine in mild hypertension, anxiety, tension, and nervousness, while on our services it has been a matter of allaying the manifestations of moderate to severe phychotic reactions primarily in those patients having chronic brain syndromes. At this comparatively early date, the rediscovered alkaloids of serpentina rauwolfia have proved their value in the treatment of disturbed and tensive individuals regardless of age. The management of older patients with the use of reserpine is quite different from that of the younger age group, although this is mainly from the standpoint of dosage. The fact is made evident by practical application and observation on our services on the wards at this station. We have proceeded to place the more disturbed and confused patients on reserpine and gaining information by comparison with their past behavior and physical status. On a geriatric ward at the present time we have a group of 74 patients on the drug. Conclusions were obtained from an over-all picture, behavior in relation to the other patients, cooperation in regard to personnel, cleanliness, interest in daily habits, desire to take part in ward details, response to questioning, sleep, activity, eating habits, weight, etc. A very striking example, and there are numerous others, is the following case report:

CASE REPORT

The patient, a 55-year-old white man, was admitted to this hospital in 1935. The background prior to 1935 was obtained from Bay Pines, VA Hospital, in Florida, from where the patient was transferred. The patient had stated that in 1920 he was examined by a doctor and told he had syphilis. He received adequate antiluetic treatment then and subsequently, but in 1929 he began losing control of his feet and legs. This condition grew steadily worse. He remained in a wheelchair after his admission here. His last gainful occupation was in 1933.

After completed studies the staff was of the opinion that the active luetic process had "burned out." During hospitalization at VA Hospital, Gulfport, he underwent various phases; originally, he was so obstreperous that approachment was very diffciult. He was pugnacious, actively paranoid towards all personnel, particularly the ward female personnel. He would attempt to run down the aides with his wheelchair or strike at them if they were within reach. He became profane and abusive, presenting a major problem as to proper care since he was completely dependent upon the personnel for his daily needs.

After having been given reserpine 0.5 mg. b.i.d. for two weeks he showed improvement. This dosage was increased. Subsequently, his paranoid behavior underwent a complete change. He sat quietly in his chair and appeared to receive great satisfaction from the least attention given him by doctors, nurses and aides.

An interesting thing here is that the patient is a burned-out paretic. The question may arise, was the central nervous system lues the cause of his psychosis? It is possible there were other cerebral pathological processes during the twenty years of hospitalization that contributed to the continuing acute psychosis.

Again a typical example taken from the records: This patient was admitted to this station in 1936. He was transferred to the geriatric service from the most disturbed ward because he constantly irritated other patients on his ward and was a bit old for his antagonists. He was only 53 years old but considerably deteriorated and appeared to be about 60. He mumbled in a continuous incoherent manner. He was persistent in tearing all his clothes and destroyed from five to six suits of pajamas a day. His face, at times, was a kaleidoscope of colors from scratches and bruises; echymotic areas were visible evidence of his continuous altercations. A good physical examination was

impossible because of poor cooperation, but there was no gross evidence of pathology. The diagnosis, schizophrenia, hebephrenic type. The serology was negative.

Here is a subsequent progress note: "Two months ago this extremely disturbed individual was started on reserpine. He was given 0.5 mg. b.i.d. for one week, then increased to 1.5 mg. daily. Since receiving this medication his behavior has made a marked change, in fact, an unbelievable change. He is not restrained. He feeds himself, while previously he was spoon-fed. He smiles and attempts to talk. He repeats names, mops the floor, runs the polisher under supervision and even dances with the female worker from the special services and comports himself generally in a commendable fashion."

The patient for the past month has been receiving only 1 mg. reserpine, morning and night. Incidentally, this dosage is one of the largest being given on chronic services. In a matter of eight months this patient has gained forty-three pounds and, naturally, will soon present another problem.

DISCUSSION

Our experience has been that the dose of reserpine in the older patients need not be large. Some of the patients have shown improvement on as little as 0.12 mg. or 0.25 mg. two or three times daily, and being maintained on this dosage after having shown that a larger dose was unnecessary or brought about disturbing features such as drowsiness, excessive sleep or the reverse, insomnia, and, interestingly a decrease in weight. Some patients taking as little as 1 mg. above what is his optimal dose will promptly show a progressive weight loss after having gained weight on the drug before this optimal dose was exceeded. We have also found in some patients the best administration is a dosage spread, say 0.5 mg. three times a day rather than 1.5 mg. in one dose in the morning or at bedtime.

From the physical standpoint there also were some changes observed. Primarily, there is an apparent improvement in the state of well being with its component manifestations, friendliness, cooperation, happiness, etc., a minor decrease in blood pressure and increase in appetite and, very noticeable, an invariable increase in weight. Averages in this group have been worked out on 74 patients. The average age was 58. The average dose of reserpine used was 1.5 mg., the smallest being 0.125 mg. and the largest dose to one patient being 3 mg. The blood pressure decreased noticeably in 79 per cent of the patients. A good many of these showed a drop of 20 to 30 points systolic, one patient decreased 90 systolic and 30 diastolic and is now being maintained at 120/80 on 1 mg. at bedtime. Blood pressure actually increased in 9 per cent of the cases, and remained static in 12 per cent. Discontinuance of medication was obligated on 4 patients because of an excessively low blood pressure response. Sixty-eight per cent showed an increase in weight of anywhere from seven pounds to forty-three pounds, 20 per cent showing a decrease

TABLE 1

TEN SELECTED CASES OUT OF 74 TO ILLUSTRATE FINDINGS

Case	Age	Blood Pressure Before Rx	Blood Pressure After Rx	Weight Before Rx	Weight After Rx	Average Daily Dosage Reserpine	Improved *	Diagnosis
1. A. C.	55	124/80	110/64	127	182	(1) mg.	Yes	S. R., C.
2. S. D	54	120/90	108/52	111	121	(1) mg.	Yes	S. R., H.
3. J. F.	68	156/84	138/70	129	139	(1) mg.	Yes	S. R., H.
4. A. A.	57	114/70	86/36	144	137	(2) mg.	No	Post Lobotomy, S. R., H.
5. L. M.	64	130/80	108/66	119	115	(1) mg.	No	S. R., C.
6. M. S.	61	130/60	106/58	122	140	(1) mg.	Yes	Manic Dep.
7. T M.	73	172/68	120/70	138	140	.5 mg.	Yes	C. B. S., Arteriosclerosis
8. C. M.	69	120/70	106/50	108	123	.5 mg.	Yes	C. B. S.
9. J. A.	68	115/80	110/70	133	159	1.5 mg.	Yes	S. R., H.
10. Mc T.	54	160/80	124/76	160	144	(2) mg.	No	S. R., H.

* By improved we indicate both mental and/or physical betterment.

in weight. Twelve per cent remained static. Sixty-nine per cent of the patients showed improvement in either his physical or his mental status. Thirty-one per cent remained unchanged.

Important points to consider in the evaluation of the weight percentages are these: (1) Some of the patients were overweight when therapy was begun. (2) The obese patients and those gaining weight rapidly were placed on weight-reducing diets. (3) Some showed a weight loss before optimal dosage was obtained.

TABLE 2

	De-creased	No Change	In-creased	Overall Improve-ment	No Improve-ment
Weight	20%	12%	68%		
Blood Press.	79%	12%	9%		
Over-all Impr.				69%	
No Impr.					31%

CONCLUSIONS

Seventy-four disturbed, confused, psychotic patients were given reserpine. On the basis of the above observations we find a great majority of patients have benefitted by the use of the drug. The drug may be used without fear and hesitation in ambulatory cases, being careful to initiate treatment with a small dosage. We have experienced no severe untoward reactions except in the initial few patients where comparatively large doses were given. It was soon learned that small doses in the geriatric patient were very well tolerated. Each patient must be closely observed to obtain the optimal dose.

Constant nursing care has been considerably reduced, thus proving a boon for the problem of personnel shortage. The impression is that the use of reserpine in the simple degenerative process would obviate the need of hospitalization and many patients could remain at home with relatives and friends under the care of their family physician.

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PSYCHOTHERAPY BY THE GENERAL PRACTITIONER *

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A mixture of modesty and anxiety seems to inhibit many general practitioners from helping their patients with psychotherapeutic methods. The modesty no doubt arises from the wealth of literature on psychotherapy, much of which can give the impression of technical complexity. And physicians are naturally anxious in approaching something which they may feel beyond their competence. But these are unfortunate misunderstandings, because psychotherapy rests on a few simple principles which can be understood and applied by any physician who interests himself in the subject. Certainly it has technical refinements too, and some patients are best handled by psychiatrists and psychotherapists of greater experience. But the referral of these patients would still leave a great many others who can and should receive psychotherapy from their family physicians.

We know that many patients with both mild and serious mental disorders recover without any help from physicians. These so-called spontaneous cures are really not at all spontaneous. They are brought about because the vicissitudes of a patient's life bring him emotional experiences which either relieve his distress or press him into a different way of living. Now psychotherapy aims at providing such experiences for the patient in a somewhat more controlled manner than the hazards of ordinary life permit. The patient is relieved and also helped to change himself.

The patient comes to the physician full of distressing psychological and physical symptoms. These arise from his failure to obtain the satisfactions and security

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which we all need in life. This failure is largely or entirely due to the patient's own behavior. However, in the misery of his suffering the patient cannot see this. But as he talks to the physician, he begins to experience some relief from his acute distress. This relief in turn permits the patient to examine and alter his own concontribution to his distress. Then, by gradually changing his attitudes towards himself and other persons, the patient fashions for himself a life situation capable of satisfying his basic needs. Thus he finally rids himself of the sources of his distress. How does the physician act to bring this about?

The work of psychotherapy is mainly accomplished by the patient's talking. Nearly all the efforts of the physician are directed towards facilitating the patient's expression of his feelings, thoughts, and desires. Now the patient wants to say these things, but he also doubts the wisdom of doing so. Past experiences have persuaded him that it is often dangerous to give his confidence to someone else. And so he wavers, half pushed to talk, half pulled to remain silent. And which pressure prevails will depend upon the ability of the person to whom he is talking to make it seem safe and helpful to talk.

So the physician must first be a good listener. He must learn to be silent when the patient is talking and to speak chiefly to encourage the patient's talking or to help him focus on topics of major importance. Usually the patient will provide that focus himself. If he is psychologically distressed he wants to talk and, although he may hesitate or evade for a time, he will nearly always come to the important matters if permitted to do so by the physician. What these matters are is rarely known by the physician ahead of time. If he selects topics for the patient's discussion he may only get in the patient's way. It is better for the physician to spend more time and allow the patient to reach the significant topics at his own pace than to deflect him away from a subject towards which he is slowly and tentatively moving. In short, the physician must not project his own ideas into the discussion. He must try to listen to the patient as a unique individual for whom certain experiences have had important meanings. These experiences may not be important to the physician as a person, but they have been important to the patient and he needs to talk about them. And the physician needs to listen to them with respect for their importance to the patient.

The patient quite rightfully will not talk to anyone who does not so listen. I said before that the patient's talking does the work of psychotherapy. But he must be talking to somebody who finds what he is saying significant. And this can only be someone who finds him significant as a person. That is, he will only talk to someone who treats him with respect and consideration. The physician must accept the patient as a worthwhile person, although this does not mean he must approve of everything the patient does or says. He must be able to feel and communicate affection for the patient. And he must purge himself of any idea that psychological disorders are somehow "bad" or disreputable, or even not disorders at all. There is no need to emphasize this point since no physician will undertake psychotherapy unless he first believes it a worthy aid to valuable fellow human beings.

But there is need to emphasize the importance of the physician's attitude towards the patient. Perhaps the most important single principle of psychology is the fact that people, whether children or adults, tend to develop qualities which are attributed to them by others. If the physician treats a patient like a child, the childishness in the patient will tend to increase. If, on the other hand, the physician addresses himself to the maturer side of the patient and treats him as if he were mature, the childishness will tend to diminish as the patient unconsciously tries to fill the role which is

assigned to him.

Given then a patient who wants to talk to a physician who has shown himself the kind of person worth talking to, how does the talking help? In many different ways and perhaps in some ways we do not even understand yet.

In the first place, talking nearly always clarifies a subject. To put a problem into words immediately brings some order into it. So long as the problem can wander loosely in the patient's mind, it may attach to itself all manner of unrealistic associated ideas, most of them laden with anxiety. But when the problem is led out of the dark mental recesses and paraded before the scrutiny of another person, a change occurs. At the very moment when the patient presents his problem to the physician, he finds himself obliged to edit it. This item is deleted, that modified, and a third amplified in order to adapt it to the seeming expectations of the listener. As this process goes on, the patient usually becomes aware of the editorial work. In short, he realizes that things are not what they seemed to be because he could not tell someone else what he thought they were. And consequently, he becomes aware of some of his distortions and achieves a new objectivity. All this can take place if the physician simply listens silently. But the effect can be enhanced if the physician also applies the scissors and the blue pencil to the copy as it comes out. Questions pointed gently here and there can greatly increase the patient's growing objectivity towards his difficulties.

But as the patient talks about his difficulties, much more goes on than a merely verbal clarification. When the patient tells his story, he relives the past events which he relates. And reliving them, he re-experiences the emotions he then felt. Often when these events occurred, the patient was unable to express himself fully and adequately. As mentioned before, from still earlier experiences he had learned the dangers of expressing himself and so he had come to inhibit the exposure of certain thoughts and feelings. The inhibited thoughts and feelings are commonly sexual or aggressive ones, but may be of other kinds.. For example, many patients inhibit the expression of affectionate and tender feelings. Now, in the doctor's office, the patient is encouraged to talk freely. He is encouraged in this not so much by the doctor's verbal encouragement to go ahead as by the doctor's manner which tells him it is safe to go ahead. Thus the patient gradually learns that he can talk freely without danger of criticism or rejection. So he does so and in doing so, first unloads much tension which had been bound with the previously inhibited emotions. But in addition, he finds that, after all, these hidden thoughts and feelings are not so dangerous as he had believed. He had condemned himself for these thoughts and believed others did so also. But the doctor does not. The doctor does not become shocked, angry or frightened by what the patient says. This immediately increases the patient's opinion of himself and also his ability to talk freely to other people. Thus he begins to communicate his thoughts and feelings to other persons. He begins to tell them his desires and his anxieties. Thus he can draw closer to them and gain from them the support, affection and satisfaction which everyone needs in life. (Figure 1 illustrates this aspect of psychotherapy.)

But this is not all. As the patient talks about his experiences ranging over the past and present, he and the physician may begin to see certain patterns emerging. The physician may notice that the patient behaves in a similar way towards quite different people. Thus the patient may make it clear that he expects a great deal of attention from his wife. The physician may observe that the patient also expects much attention from him. The patient may make unnecessary calls at night, request unnecessary home visits, and demand various special favors. And both of these attitudes towards the wife and physician are themselves repetitions

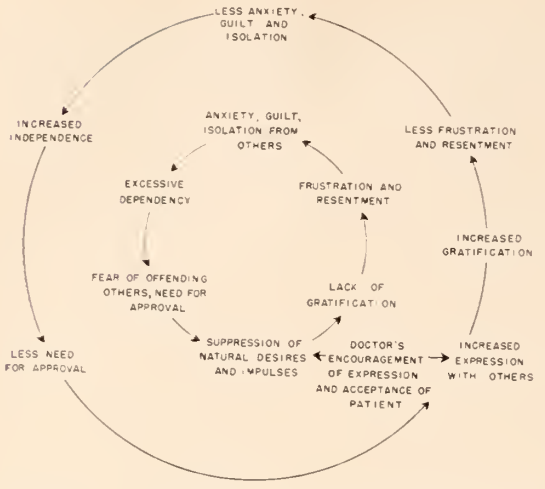


Figure 1. Illustrating how the patient's expression of feelings to the doctor may prepare him to express his feelings constructively with other people.

of earlier, never outgrown attitudes towards the patient's mother from whom he obtained and expected gratification of his every wish.

Sometimes the patient can and will notice these patterns for himself and set about modifying them. More often, they must be pointed out to him. This the physician does gently and perhaps most easily in the form of questions. He may ask, for example, "Do you feel towards your boss the way you felt towards your father?" or "Have you noticed any connection between the way you handle your wife and your feelings towards your mother?" Such queries may not be welcomed enthusiastically by the patient, but they will usually start him thinking about the questions raised. Once he begins to see such patterns in his own behavior, he begins to see how he himself has contributed to the difficulties in which he finds himself. This will contrast with his previous conviction that these difficulties resulted from the hostile or inconsiderate behavior of those around him. The insight may not be pleasant at first, but once grasped, it always brings a sense of increased power. The patient finds that he can do something about his part in events. When he realizes the importance of his own contribution to his destiny, he begins to alter his behavior which he would never do so long as he saw himself only as the helpless victim of other, more powerful persons. Thus, the patient's awareness of his responsibility for his life situation increases both his sense of power over his life situation and also his motivation to change himself and his situation.

In his efforts to change himself the patient obtains encouragement from the physician who endorses constructive changes in the patient's behavior. The physician can frequently enhance these changes by noticing with the patient those changes which have brought him new satisfactions. This can be done without making the patient feel that he must do certain things to placate the physician or win his approval. The physician accepts the patient whatever he does, but he can certainly feel and show pleasure in the patient's moves towards more constructive living. And this can provide necessary support for the patient as he at first tentatively tries new patterns of behavior and enters new experiences.

Such a psychotherapy as that outlined may seem so simple as to make one think it can be done by anyone, say a member of the family or a friend. And of course the best of friends do act in just this way for all of us. But obstacles stand in the way of friends and relatives when they try to help patients with psychological problems. These obstacles are not present or can be controlled when the patient consults a physician.

For example, when the patient talks to a relative or friend, the person he talks to is likely to be embroiled in the same situation as the patient. He therefore has a vested interest in what the patient does. Consequently, his remarks are likely to be influenced by his own needs in the situation. The friend or relative who is himself emotionally involved may struggle, but unsuccessfully, against the temptation to offer the patient advice. Now advice can have its place in life, but it rarely, if ever, leads to psychological growth.

Moreover, persons who are likely to need psychotherapy have usually suffered from a surfeit of advice or at least from the conviction that they must do what others tell them. They almost invariably need experience in making their own decisions and accepting responsibility for these. But they also need the opportunity of talking in an atmosphere unclouded by the emotional pressure of other persons.

The physician can provide this atmosphere. He is not himself emotionally involved in the patient's dilemma and can therefore listen more or less objectively. I say more or less because the physician will find this much more difficult than he at first imagines it to be. He also will have to struggle against temptations to interject his own ideas and to offer advice. He must try to help the patient find out what will be best for the patient rather than what would suit the physician. But being more detached from the immediate situation, the physician can nearly always succeed in this task when the patient's friends and relatives are likely to fail.

And in another important respect also the physician can improve on what friends and relatives may offer. He can forebear from premature reassurance. Because they are attached to the patient, relatives and friends do not like to see him suffer. Or his fears, angers and depressions may induce similar distress in themselves, and they do not like to see themselves suffer. In either case they can, or think they can, interrupt the suffering in the patient or themselves by covering up the patient's anxieties with a thick layer of reassurance. They tell the patient that things are not as bad as they seem, that he should be patient, or must buck up, and so on. Now such comments, when delivered earnestly enough may offer some support or passing relief to the patient. But they nearly always have the additional effect of shutting up the patient's expression of his feelings. This may be what the friends and relatives wish. But it is no solution to the patient's deep need to express just those feelings which are being thus bottled up. The physician on the other hand, and again because he is somewhat removed from the situation, can bear to listen to the patient. He can hear him out fully without having to cut him off. Certainly, the physician's anxieties also may be aroused by what the patient says, but interference from these anxieties can be reduced if the physician remembers the importance of permitting full expression to the patient. Reassurance the patient may need and should receive at times. But it should be given only after he has been heard to the end of any subject. Reassurance should be applied for the comfort of the patient, not to reduce the discomfort of the physician.

I have said little about interpretations and deliberately so. I believe that effective psychotherapy using the principles outlined can be practiced with few or no interpretations. Furthermore, even in the most expert psychotherapy, the most moving interpretations are those which the patient discovers for himself, albeit with the guidance of the physician. Physicians are sometimes held back from practicing psychotherapy because of mistaken fears that they may apply too many or too few interpretations. This is unfortunate and seems to me to miss the essence of all psychotherapy. And this is that the physician provides for the patient an experience in which he can express himself and study himself. And while he is doing these things, he discovers and tests new ways of relating to people and of solving problems. This experience is initiated and continued by the anxiety and distress of of the patient who wants to feel better and live better. But the process of recovery is advanced by the contribution of the physician which is chiefly his respect and affection for the patient and his conviction that the patient can reach better solutions to his difficulties.

However, although the process goes on within the patient and is driven by motives within him, the contribution of the physician provides the additional force

which sustains and advances the recovery. And it has been my theme in this paper that this contribution of the physician lies chiefly in his constructive attitude towards the patient, namely in his respect and affection for him. Such respect and affection the patient may not have met often, or even ever before. Thus talking to the physician provides a new experience for the patient, corrective of older, less happy experiences. And from this new experience the patient can then move towards newer and happier experiences with other people.

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A SIMPLE ARTIFICIAL HEART-LUNG; AN APPROACH TO OPEN HEART SURGERY. PRELIMINARY REPORT

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INTRODUCTION

An adequate artificial heart-lung or pump oxygenator must temporarily substitute for the heart and lungs. It should satisfy these criteria:

1. Circulate the blood effectively and safely.
2. Add sufficient oxygen to the blood.
3. Eliminate proper quantities of CO_2.
4. Cause minimal destruction of formed elements of the blood.
5. Not disturb clotting mechanism.
6. Not deliver gas or other emboli.

DESCRIPTION

The simple all plastic unit herein described fulfils these criteria. It is a single unit, as diagrammed (Figure 1), extending from the venous canula around to the arterial canula. It consists of a tubular ascending (venous) limb, into which enters the venous blood and the oxygen inlet tube, and a funnel shaped descending (arterial) limb, from which exits the arterial tube. The venous tube opens into the ascending limb; the oxygen inlet tube projects about 30 cms. up into the ascending limb. This tube has about 1000 pinholes, and the end is sealed. In operation, this allows tiny oxygen bubbles to grow on the outside of this tube. A trough along the wall of the descending funnel prevents channeling of blood directly into the outflow tube. A large fine mesh nylon filter slants across the funnel. Aspirated coronary sinus flow enters independently, near the apex of the apparatus. The walls of the apparatus have been impregnated with silicone "anti-foam",* which adequately controls foam formation. Blood from both vena cavae is pumped † into the ascending limb where it is mixed with oxygen directly from a tank. A sharp color change can readily be seen in the blood in the ascending limb, and is maintained in the lower half by regulating oxygen flow. Sufficient CO_2 is swept out by this flow of oxygen. Gases escape at the open end of the apparatus. Arterialized blood from the reservoir returns to the arterial system by gravity, at a pressure regulated by the height of bag. Heparin is used as an anticoagulant, and protamine is given at the end of the procedure.

ADVANTAGES

The advantages of this simple artificial heart-lung apparatus are several. The apparatus is a single unit of polyvinyl chloride, which can be wrapped and autoclaved. It is inexpensive and disposable. The use of a single pump on the venous side obviates the need of synchronized pumps. All available blood is removed from both vena cavae and delivered to the reservoir. The total volume of the system is then primarily the volume in the animal plus the volume in the reservoir. By elevating the bag and increasing the arterial pressure, more of this total blood is in the animal and the volume in the reservoir can be seen to fall. This fall lowers the pressure and reverses the process, acting

* Dow-Corning Silicone Antifoam A.

† Any one of several pumping devices that "milk" blood through a piece of tubing may be used. At present we are using a "Sigmamotor Pump", made by Sigmamotor, Inc., 3 N. Main St., Middleport, N. Y.

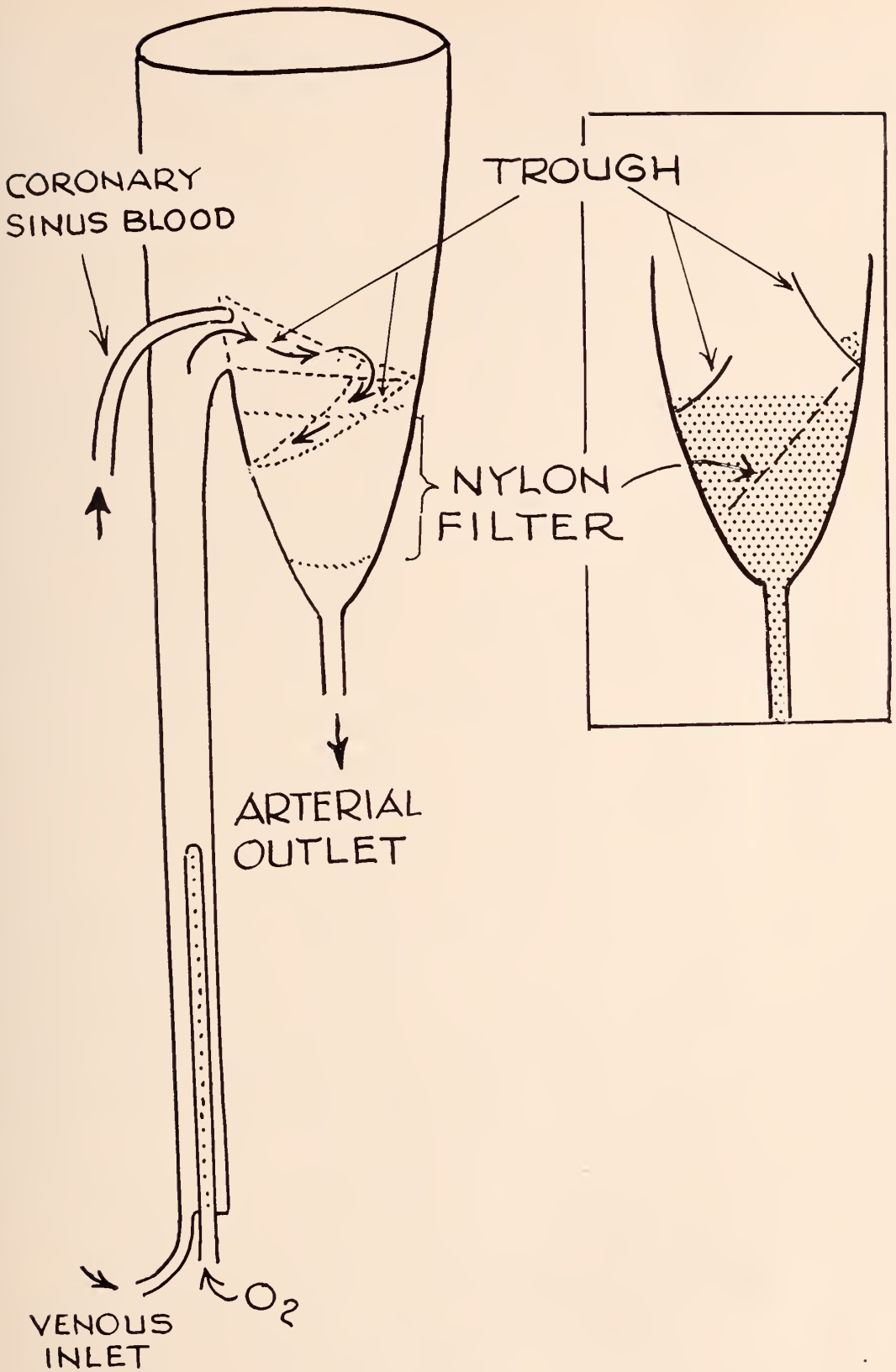


Figure 1. Side view and sagittal section.

as a servo mechanism.

The effectiveness of vena cavae collapse is easily controlled by the thickness of the portion of the tubing in actual contact with the fingers of the pump. The choice of thicker tubing or lowering the pump produces greater suction. No changes are necessary in the speed of the pumping device.

The plastic is clear and all changes, such as color changes of the blood and levels of the reservoir, are readily visible at all times. This permits safe use of this apparatus without the need for instrument monitoring or laboratory control. There are no moving parts. The oxygen is dispersed through at least 1000 holes so that it exudes slowly with no jets. This minimizes blood destruction and obviates tiny O_2 bubbles. There is no physically free anti-foam oil.

RESULTS

Using this apparatus, 11 consecutive dogs have been subjected to total cardiopulmonary by-pass with effective maintenance of circulation for periods of thirty to sixty minutes. During this time, the right atrium has been opened, the coronary sinus flow has been adequately drained by catheter, and a nearly completely dry atrium obtained. There have been no deaths and no apparent morbidity.

The pertinent data on a typical experiment is indicated in Figure 2. The blood pressure has been maintained at levels between 50 and 120 mm. of mercury. The flow rate has varied from 500 to 1000 or more c.c./min. The arterial blood is 100 per cent saturated and the arterial CO_2 is normal or slightly low. The arterial *p*H at the end of the by-pass procedure has varied from 7.29 to 7.36. There is a slight increase in the plasma hemaglobin and some fall in platelets at the end of the procedure. The white blood cell count does not change significantly and a slight fall in the red blood cell count can probably be explained by the fluids added.

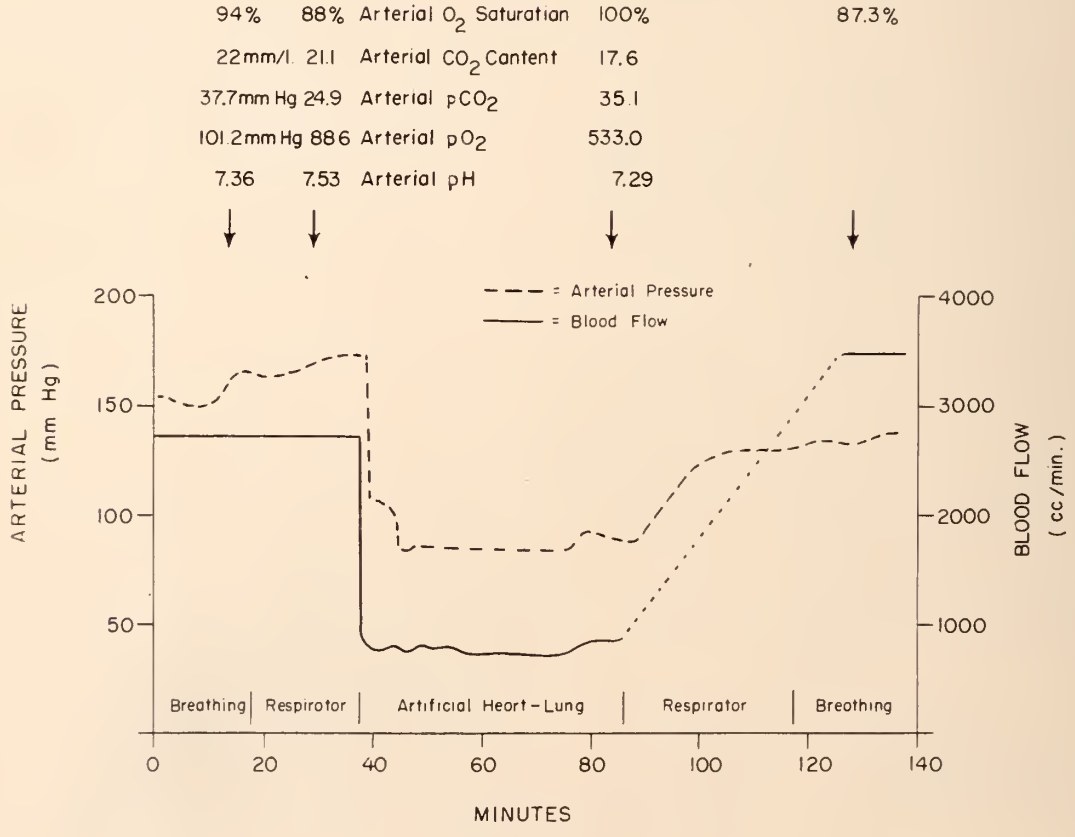


Figure 2

SUMMARY

1. A simple, disposable, all plastic artificial heart-lung apparatus is described. It employs only one pump on the venous side, contains no moving parts, and delivers arterial blood by gravity.

2. The apparatus has been safely used without necessity of instrument or laboratory monitoring.

3. Total cardiopulmonary by-pass for periods of thirty to sixty minutes has been performed on 11 consecutive dogs without mortality or apparent morbidity.

Note: This work has been supported in part by funds from the Louisiana Heart Association and the Edward G. Schleider Foundation, New Orleans.

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LONG RANGE COMPLICATIONS OF POORLY CONTROLLED DIABETES *

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Following the discovery of insulin in 1922 the death rate in diabetes dropped rapidly. According to Joslin and coworkers,[1] the death rate for diabetic coma was reduced from 63.8 per cent prior to 1914 to 3.1 per cent between 1944 and 1952. (They regarded even this low figure as evidence of deplorable ignorance or suicidal neglect by patients). However, one's satisfaction with this triumph is tempered by present statistics, which give melancholy evidence that diabetic patients face another threat from such serious degenerative pathologic processes as premature arteriosclerosis, diabetic retinopathy, diabetic neuritis, and glomerular renal lesions. These cripple and kill an appallingly high percentage of patients of any age whose diabetes is of more than ten years' duration.

This paper proposes to examine the contention that such devastation is preventable in direct proportion to the degree of perfection attained in the control of diabetes. The long range complications to be considered are (a) premature arteriosclerosis, especially when it attacks coronary and cerebral arteries and those of the lower extremities, and (b) "diabetic triopathy," as Root and coworkers[2] termed the triad of degenerative lesions, diabetic neuropathy, diabetic retinitis and diabetic nephropathy (intercapillary glomerulosclerosis or Kimmelsteil-Wilson syndrome). These degenerative processes usually occur together.

Before the etiology and symptomatology of these complications are considered, it might be best to examine their incidence in patients of various ages who have had diabetes for varying periods of time. An attempt will be made to compare the incidence with the degree of control of diabetes. In this regard one's personal experience or a small series of cases can be misleading. Most of us have encountered an occasional patient with diabetes who has few or no complaints, has completely disregarded the rules of good diabetic care for ten to twenty years and has practically no signs of degenerative disease. Contrast this vivid picture with the many diabetic patients, miserable at an early age because of angina, failing vision, intermittent claudication, and perhaps edema from advanced renal disease. Since these patients may have superficially, at least, seemed to have taken "good" care of themselves, it seems probable that the appearance of degenerative lesions is governed by predisposition, genetic factors or obscure factors that seem impossible to control and make it seem hardly worth while to attempt precise diabetic control. Indeed, many physicians have adopted this attitude and advocate the "free diet" management of diabetes.[3-5] However, it would seem wiser to examine the evidence more closely before accepting this gloomy conclusion.

The picture obtained from examination of a fair number of recorded statistics is not good, but it has some bright aspects, and perhaps some hopeful conclusions can

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be drawn, even though they must remain tentative at this stage of our experience. Life expectancy tables provides a good starting point. Joslin and associates[1] recorded the following statistics based on more than 8000 diabetic histories: at 10 years of age the life expectancy of non-diabetic persons is 57 more years as contrasted with 40 for the diabetic patient; at the age of 20 years the respective figures are 48 and 33; at 30 years, 39 and 28; and at 40 years, 31 and 21; whereas for decades past the fifth, the lessened life expectancy in the diabetic groups averages only 5 years, the difference lessening sharply in the older groups.

Clinicians who have been able to accumulate sufficient data on a number of patients followed long enough to obtain valid information have found important differences between various groups of patients. Wilson, Root and Marble[3] who evaluated the experience of Joslin and associates, reported 247 cases of diabetes in which the age of onset ranged from 1 1 12 to 30 years and the duration from ten to thirty-four years. They studied these cases for evidence of degenerative lesions of the kidneys, retinas, and blood vessels, correlating this with the degree of control of the diabetes. Their evaluation of degree of control was more minute than that of most other reports, and perhaps that is the reason some encouraging facts were gleaned from rather depressing statistics. Their evaluation and classification of control may be summarized as follows.

There were 7 patients (2.8 per cent) with excellent control. The criteria for this group were that they weighed their diet 80 per cent of the time, tested the urine before meals two or more times a day and usually found it sugar free, never had diabetic coma, and had regular physical examinations and blood tests with blood sugar usually in satisfactory range. Thirty patients (12.1 per cent) were classified as having good control. This meant that they tested their urine once a day, weighed their diet for two months and later carefully measured it, and the other criteria were the same as for excellent control. There were 51 patients (20.7 per cent) with fair control. They tested the urine once a week, "conscientiously followed" their diet but did not weigh it and had coma rarely and perhaps it was "unavoidable." All other patients were considered to have poor control. This ranged from anything worse than the previous criteria to gross neglect. There were 159 (64.4 per cent) in this group.

Patients were studied for (1) roentgenographic demonstration of calcium in the vessels; (2) retinitis and (3) nephropathy-albuminuria with or without hypertension. They found that about 65 per cent of patients with fair or poor control for twenty years had some severe degenerative lesion. Only one patient with excellent control had any degenerative disease (mild retinitis), and only 17 per cent of patients with good control had some type of retinitis as contrasted with 60 per cent in the group with fair and poor control.

Other clinicians have reported comparable data indicating that the poorer the control of the diabetes the greater the evidence of serious complications.[6, 7] For example, Engleson[8] reported that of 217 adult and 42 juvenile diabetic patients treated by a free diet for over ten years, only 7 had no vascular complications. In those whose diabetes appeared before 40 years of age, nephropathy was present in 63 per cent, retinopathy in 60 per cent and hypertension in 65 per cent. Even though the criteria for control in most reports are not as specific as those of Joslin and associates,[1] significant differences have been recorded in the incidence of complications among those with reasonably good control and those with poor control.

Those who contend that degenerative complications are unrelated to the degree of control of the blood sugar report that the incidence of complications in patients treated by the "free diet" really compares favorably with reports of opposing views. However, they compare the incidence of complications in their patients with that

in the total number of patients, grouping together patients with excellent and good control and those with fair and poor control. Since the groups with excellent and good control in most series comprise only 12 to 15 per cent of the total, they influence the total statistics little and their significance is lost.

What is really being argued by those advocating "free diet" control of diabetes is that diabetes mellitus may be thought of as comprising two distinct manifestations developing at different rates of speed, that is, (1) insulin deficiency leading to classical symptoms of diabetes and (2) unknown mechanisms leading to accelerated vascular damage.[9] It is contended that the etiologic factors are probably genetic and inherited as recessive genes. This theory is by no means proved and there is much evidence against it, as I have tried to show. This is not to deny the overwhelming evidence of the hereditary nature of diabetes mellitus but rather to demand more proof that the vascular complications are an inevitable accompaniment, for although hereditary factors may well be operative here, it seems more likely that they are not necessarily carried by the same genes that produce the diabetes. Moreover, biochemical abnormalities of poorly controlled diabetes may well be the most important factors in producing vascular damage.

This brings us to a brief and, of necessity, superficial examination of some of the clinical and experimental facts and theories of the causes of the degenerative complications. The biochemical and biophysical abnormalities that have been described as etiologic agents, or indices of as yet unknown etiologic factors, in arteriosclerosis include hypercholesterolemia, elevated levels of total lipids, elevated chylomicron levels, increased capillary fragility and elevated levels of macromolecular phospholipids as measured by the ultracentrifuge technics of Gofman. When these disturbances are measured in diabetic subjects, they are found in an extremely high percentage, and the poorer the control the greater is the magnitude of these deviations. In animals made diabetic by pancreatectomy or alloxan, researchers are finding from observations over a prolonged period that those animals with persistent hyperglycemia eventually show severe arteriosclerosis comparable with that found in human beings, whereas controls with nearly normal sugar levels show little or no arteriosclerotic changes.

The basic pathologic process in the "triopathy of diabetes" is a vascular disturbance probably originating in the capillary walls. The initial lesion in both diabetic retinopathy and intercapillary glomerulosclerosis is the capillary microaneurysm.[10] The weakening of the capillary wall which produces the aneurysm seems to occur at the same time or perhaps to be preceded by changes in capillary wall permeability. This causes leakage of protein material seen as exudates in diabetic retinitis and foreign material (probably also protein) deposition outside the glomerular capillary wall in diabetic nephropathy. This can be produced experimentally in alloxon diabetic rabbits and other animals given large doses of corticotropin (ACTH) or cortisone.[11] That this might be an important factor in human beings is suggested by other studies in diabetic patients during a period of inadequate control yet who do not have acidosis. It was noted that these patients excreted (and presumably were producing) much higher amounts of cortisone-like steroids (formaldehydogenic steroids) than they did during periods of adequate control of the diabetes.[12]

The effect of hyperglycemia of moderate levels (comparable with that seen in patients with only fair or poor control) has not received as much study as the secondarily disturbed lipid metabolism it produces, and it is obviously difficult to isolate the effect of one from the other. However, blood sugar values higher than normal are probably not entirely benign, especially to cellular metabolism. New attention is being paid to the problem of the fate of the ground substances of tis-

sues—the intercellular matrices and cell walls, where serious disturbances in permeability can easily occur. The earliest detectable changes in experimentally produced atheroma in rabbits are alterations in ground substances.[13] Pathologists have noted these changes in ground substance in diabetic persons.[14] Since ground substances are complex mucopolysaccharides, it would be most surprising if chronically abnormal glucose levels would not disturb their integrity. Researchers and clinicians dealing with these knotty problems are beginning to hazard guesses that here lies a fundamental problem that might show the common denominator of the various vascular disturbances that affect the diabetic patient.[15]

There is strong evidence that the biophysical and biochemical disturbances of diabetes, probably working along with genetic factors, cause or accelerate the degenerative complications of diabetes. The implication is that preventing or minimizing these disturbances should be the goal in the treatment of diabetes. Attainment of "perfect" control with no deviation of the blood sugar from normal range is patently impossible. In view of the consequences, however, the patient and his physician should try to attain the degree of control described earlier as "excellent." This would involve following a number of recognized principles of diabetic care.

Diet — The caloric value of the diet should maintain body weight at or slightly below normal. The diet should contain 90 to 120 Gm. of protein, 200 Gm. or more of carbohydrate and sufficient fat to make the diet palatable and contain adequate calories. With our present knowledge, pronounced restriction of fat in an attempt to delay development of arteriosclerosis would seem justified only in patients with definite evidence of serious arteriosclerotic disease. It is difficult to adhere to diets with fat content of only 50 Gm. because they are not palatable to the average American. Measurement of the diet must be accurate; this is probably best done by weighing for several months. Several conferences with the dietician are usually necessary before patients get a clear understanding of their diet.

Insulin — Type and dosage of insulin must be determined by trial and error. The goal is fasting and preprandial blood sugar values as nearly normal as possible, without undue risk of hypoglycemia.

Urine Tests—For optimum care fresh urine specimens should be checked before each meal and at bedtime and recorded daily with the aim of adjusting the insulin dosage to maintain sugar-free urine.

Blood Sugar Tests — The only way to achieve this goal is to perform fasting glucose tests as well as spot checks before midday and evening meals. The ideal is nearly normal blood sugar values before midday and evening meals if they can be maintained without producing hypoglycemia.

Checkups—At least once yearly a complete physical examination should be done. In addition, other examinations and conferences with the physician are indicated as circumstances dictate.

Obviously, many factors can prevent this desirable degree of perfection in the control of diabetes. Limited intelligence of the patient, unfavorable psychic factors or the type of diabetes that fluctuates wildly without obvious reason ("brittle" diabetes) may conspire to limit what can be done. However, it is the physician's obligation to see that it is not lack of proper instruction and supervision that keeps the diabetic patient from attaining the best possible control.

Detailed discussion of the treatment of the degenerative complications will not be attempted. The many approaches that have been advocated, including parenteral vitamin therapy, special low fat diets, use of lipotropic agents, small doses of heparin, intra-arterial injections of histamine and even such radical procedures as removal of pituitary or adrenal glands, are evidence that there is no completely satisfactory treatment. Nonetheless, several

points should be made. First, meticulous control of the diabetes is probably the most important single therapeutic weapon to retard progress of the degenerative complications or even reverse the early changes. Secondly, the physician should strive for recognition of the earliest signs of degenerative changes in the diabetic patient, for at this stage there seems to be a real chance, with precise diabetic control, to reverse the processes or at least arrest their progress so that they do not cripple or threaten early death. Capillary fragility can probably be detected earliest by fundoscopic examination, as the small red dots are capillary micro-aneurysms, whereas actual hemorrhages and exudates suggest a more advanced process. Easy bruising is another early sign. The circulation of the feet should be carefully checked with search for excessive rubor on dependency or slight edema; actual disappearance or great diminution of pulsation in the dorsalis pedis or posterior tibial arteries indicate more advanced changes. Roentgenographic evidence of calcification of the vessels of the leg and foot might be obtained. Because diabetic neuritis is most often the earliest degenerative change to appear, patients should be questioned about numbness or paresthesias, especially in the legs and feet, and unexplained diarrhea or constipation. Another early sign might be great decrease of vibratory sense. Urine should be examined for traces of albumin or abnormal amounts of red cells and casts in the sediment, for diabetic nephropathy becomes symptomatic only when it is hopelessly advanced. In the presence of any of these indications of degenerative complications of diabetes, the diabetic regimen must be carefully reappraised and plans made to improve it whenever possible. Their significance should be explained to the patient and his responsibility in attaining optimum control clearly indicated.

SUMMARY

There is convincing evidence that the degenerative complications associated with diabetes, including premature arteriosclerosis, retinitis, neuritis and intercapillary glomerulosclerosis, are, to a large extent, caused by biochemical and biophysical abnormalities resulting from poor control of the disturbed glucose and lipid metabolism of diabetes. Clinical observations show that the incidence of these complications is appreciably lower in the patient who has best controlled his diabetes. Our responsibility as physicians is to teach our patients the advantages of maintaining this degree of control and helping them get the incentive and skill to carry it out.

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TAXATION IN LOUISIANA

Taxes have risen in Louisiana, as in all other parts of the United States, in the last thirty-five years. The burden of taxation in Louisiana is out of proportion to what it is in other states. As we in this state have ventured further on the road toward the welfare state than the other members of the Union, it is timely that our citizens — including the physicians — consider our position.

During the next ninety days the Legislature of the State of Louisiana will meet and levy taxes for the one or two years ahead. During that time theories will be advanced, plans made, and appropriations requested that will affect the practice of medicine, the interests of the physician, and the position of the taxpayer. Physicians will be asked their opinion in such matters in regard to the professional and the financial feasibility. They will find themselves in need of facts upon which to base an opinion.

The reports of the Public Affairs Research Council of Louisiana give information of great value on the taxation phase of Louisiana government, but particularly, on the welfare program. Reviewing the salient features of reports made in 1954 and 1955, it is shown that the statement that Louisiana is venturing further toward the welfare state than any other is amply justified. The number of taxes levied by the state government of Louisiana has increased from 4 in 1921 to 48 in 1953. The revenue yielded by these taxes amounted to $299,857,903.55 in the fiscal year 1951 - 1952, or about twenty-four times as much as in the 1921 yield of $12,500,000. Public welfare cost $110,000,000, which was 29 per cent of all state expenditures in the fiscal year 1953. More than 8 persons out of every 100 in Louisiana were receiving public assistance in 1953. This is the highest rate in the nation and more than double the national average of over 3 persons per hundred. In 1953, Louisiana had 604 out of every 1000 persons over 65 receiving old age assistance. This is the highest in the nation and is more than three times the national rate of 191. Disability assistance was received by 8.7 persons out of every 1000 between the ages of 18 and 65. This also is the highest rate in the nation and more than three times the national rate of 2.6. Public assistance in Louisiana cost $39.85 per capita in 1952. This is the third highest in the nation and double the national average of $17.67. During the same year Louisiana ranked fortieth in per capita income. In 1952, Louisiana

ranked ninth among the states in total state tax collections with $283,158,000, but at the same time Louisiana's per capita state tax collections of $102.70 were the second highest among the states, being slightly exceeded by Washington with a per capita state tax of $102.72. The average among the states is $64.48. However, Louisiana ranked first in the ratio of state tax collections to personal income, which is a measurement of the ability to pay. From every $100 of personal income in Louisiana in the calendar year 1954, $8.09 was collected in state taxes. The national average was $4.09. In June 1953, 215,772 people were receiving public assistance.

One of the major factors influencing dependency is the income of the state's population. The median income for 1949 in Louisiana was 30 per cent lower than the median income for the United States. An aged couple receiving maximum old age assistance grants enjoys a higher income level than many Louisiana citizens. The level of education contributes in some measure to this dependency. In 1950, Louisiana led the nation in the proportion of functionally illiterate persons in its population, which was 29.5 with a national average of 11.1 per cent. Louisiana's percentage of the population in the labor force was 49.3. The national average is 53.3 per cent. While Louisiana had 42.8 per cent under 19 and over 65, the national average is 39.2 per cent.

This startling array of facts compiled by PAR shows that Louisiana has the highest rate of taxation and is in the poorest condition to pay such taxes. Accordingly, when support is sought for measures designed to increase the taxation, these facts should be mentioned. When the building of additional charity hospitals is proposed it should be shown that we now have the highest number of charity beds per capita of any state in the nation, with eight charity hospitals strategically located and twelve private hospitals with contract charity beds. There are approximately three free beds to each pay bed in Louisiana.

When additional programs in the direction of luxury government are advocated, it should be pointed out that education, public welfare, and debt service took 65 per cent of the $384,000,000 state government expenditures in 1953. When local, state, and federal taxes are added, the result is a burdensome total. This has been variously calculated, for the nation as a whole, as being about 27 per cent of total national income at present. This would be greater for Louisiana citizens because our per capita tax is about twice the national average.

An eminent economist has shown that when taxation significantly exceeds 29 per cent of national income, inflation or depression must follow. Nationally, we are approaching that figure, and locally, we have probably exceeded it.

Economics has been called a dismal science, and there is little in the tax situation in Louisiana to contradict that opinion.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.



MAX MAYO GREEN, M. D.
President
1955 - 1956

Dr. Green is now approaching the final milestone in his office as President of the State Society and he has rendered a wonderful service to our members. His genial, good natured approach to the solution of the many problems presented, has endeared him to a great majority of our members. This has been a year of decision, requiring great insight, mature judgment and forethought in acting in the best interest of our members, and Dr. Green has handled the affairs of the Society in a commendable manner, with partiality to no one. He has always striven to face his responsibilities with the idea uppermost in his mind, that there are always two sides to every question, and any decision arrived at must be made in the interest of all of our members.

Dr. Green has been quite active in attending component parish and district society meetings, fraternizing with members, thereby creating a closer grassroot relationship between the members and the headquarters office.

Our President was born in Oakland (Union Parish), Louisiana and received his early education at the Mer Rouge Public High School. He received his B.S. degree from Tulane in 1927 and in 1929 received his M. D. degree from Tulane Medical School.

He was licensed to practice medicine by the Louisiana State Board of Medical Examiners in 1929. He served as an intern at Charity Hospital in New Orleans 1929-30 and was a Resident in Urology from 1930 to 1932. On completion of his training at Charity Hospital, he began the practice of medicine in New Orleans, where he has enjoyed an active practice in his chosen specialty of urology, since 1932.

Dr. Green is a member of the visiting staffs of Southern Baptist, Mercy, Hotel Dieu and Charity Hospitals, in New Orleans, serving as senior urologist at these respective hospitals.

He is also a member of the Orleans Parish Medical Society, having served as its President in 1948. He is a member of the New Orleans Graduate Medical Assembly, having served as its Secretary. Other organizations in which he holds membership are the American Medical Association, American College of Surgeons, American Urological Association and he is a Diplomate of the American Board of Urology.

Dr. Green is Assistant Professor of Urology in the Louisiana State University Medical School.

He is quite active and has shown great interest in civic and community problems, having served as Chairman of the Medical Committee of the New Orleans Chamber of Commerce. He is also a member of the Louisiana Health Council and has shown a great interest in the problems of this Council.

He has been active in fighting for Organized Medicine in all of its phases. He is vitally interested in our public relations and educational program and has been cooperating with our Public Relations Counselors and Legislative Consultant in programs outlined and instituted for the good of the Society.

The members of this Society have been very fortunate in having Dr. Green as their President for the past year. He has shown a keen interest in all matters connected with the Society and it is our sincere desire that he will continue to be active and to give us the benefit of his wise counsel during the coming years. The members want to assure you, Dr. Green, that they are not unmindful of your great service to the Society and will be forever grateful to you.

AMERICAN MEDICAL ASSOCIATION RURAL AND URBAN HEALTH COUNCIL MEETING

This meeting was held in Portland, Oregon on March 9-10, 1956, and was preceded by a meeting for discussion of rural health problems by representatives of state committees.

Dr. W. J. Weese of Ontario, Oregon, presided at the meeting and greetings were extended by Dr. I. C. Munger of Vancouver, Washington, who is President of the Washington State Medical Association. Theme of the pre-conference meeting was "The Doctor's Responsibility In The Physician-Patient Relationship" and "The Over-All Health of The Community". Dr. F. S. Crockett, Chairman of the American Medical Association Rural Health Council discussed the Physician-Patient Relationship, and Dr. B. C. Farrand, Chairman of Committee on Rural Health, Jordan, Montana, discussed the Over-All Health of the Community. This was followed by Dr. J. E. Zimmerman of Tieton, Washington, who discussed "Getting the Patient's Cooperation in Rendering Medical Care". After this discussion Dr. Herbert E. Mason, Chairman of Committee on Rural Health, Beaverton, Oregon discussed "Advising the Family in Physical Examinations and Dr. Murland F. Rigby, Chairman of Committee on Rural Health, Rexburg, Idaho, presented "Community Health Survey and Its Part in the Family Relationship".

The Conference was opened on Friday morning, March 9, with the subject of mental health as the conference problem. It was followed by "Problems of the Aged" discussed by Dr. Robert Heilman of Portland, Oregon. Friday afternoon, "Uses and Abuses of Health Insurance" was discussed. An evening of entertainment followed the banquet which was held at 7:00 P.M. Friday.

Saturday morning a symposium on "The How, What and Why of a Dental Project" was given, followed by a series of health problems. There were excellent discussions from farm, the press, and the extension services.

All in all, the conference was very good and very well attended.

The chairman of the Louisiana Rural and Urban Health Committee, Dr. J. P. Sanders of Shreveport, and Dr. M. C. Wiginton of Hammond, attended the meeting in Portland. Of the 11 council meetings, each has attended 10.

BLOOD BANKS OPERATING IN LOUISIANA *

Following is information concerning blood banks operating in Louisiana which has been furnished by Dr. J. W. Davenport, Jr., Chairman of the Committee on Blood Banks of the State Society:

ALEXANDRIA

Baptist Hospital
Dr. E. C. Uhrich
St. Francis Cabrini Hospital
Dr. John B. Maxwell

BATON ROUGE

Baton Rouge General Hospital
Dr. S. H. Colvin or Dr. W. S. Randall
Our Lady of the Lake Sanitarium
Dr. A. L. McQuown or Dr. J. L. Bevan

LAFAYETTE

Lafayette Charity Hospital (cw)
Dr. L. L. Swan or Miss Hermine Tate, M.T., BBT (ASCP)
Southwest Blood Bank, Inc.(**) (cw) (x)
Head Office Phoenix, Ariz., Mr. W. Quinn Jordan, Executive Director

LAKE CHARLES

Memorial Hospital
Dr. Louis A. Hebert
St. Patrick's Hospital
Dr. Andrew Ranier

MONROE

St. Francis Sanitarium
Dr. N. Klam

NEW ORLEANS

Charity Hospital (cw), 1542 Tulane Ave, zone 12
Dr. John Adriani or Miss E. Boudreaux, M.T. (ASCP)
Flint-Goodridge Hospital (c), 2425 Louisiana Ave., zone 15
Dr. A. J. Bloom or Mr. C. C. Weil, Administrator of Hospital
Hotel Dieu (w), 2004 Tulane Avenue, zone 19
Dr. R. M. Hartwell or Dr. A. Y. K. Hew

Mercy Hospital (w), 301 N. Jefferson Davis Pkwy., zone 19
Dr. George H. Hauser or Dr. Evelyn Nix
Ochsner Foundation Hospital (w) (**), 1516 Jefferson Highway, zone 21
Dr. G. M. Carrera or Mrs Mary Wright, M.T., BBT (ASCP)
Sara Mayo Hospital (cw), 609 Jackson Ave., zone 13
Dr. W. H. Harris, Jr.
Southern Baptist Hospital (w), 2700 Napoleon Ave., zone 15
Dr. J. W. Davenport, Jr. or Miss Frances Street, M.T., BBT (ASCP)
Touro Infirmary (w), 3500 Prytania Street, zone 15
Dr. J. W. Davenport, Jr. or Miss Ula Troxler, M.T., BBT (ASCP)
U. S. Public Health Service Hospital (cw), 210 State St., zone 18
Dr. W. H. Monroe, Chief of Laboratory Services
Veterans Hospital (cw), 1601 Perdido Street, zone 12
Dr. P. Pizzolato or Dr. J. Ziskind

PINEVILLE

Huey P. Long Charity Hospital (cw)
Dr. E. C. Uhrich

SHREVEPORT

Confederate Memorial Hospital (cw) (formerly Shreveport Charity Hospital), 1541 Kings Highway
Dr. S. D. Cummins or Dr. G. M. Harwell
Memorial Blood Bank of Shreveport (**) (x) (cw)
1541 Kings Highway
Dr. S. D. Cummins or Dr. W. R. Matthews

* SYMBOLS:

(**) Indicates federal licensure
(x) Indicates bank operating as separate unit (i.e. **not** as a hospital department). With the two exceptions noted, all Louisiana blood banks are operated by hospitals.
(cw) Indicates blood bank which routinely receives white and colored donors.
(c) For colored only
(w) Indicates blood bank which routinely receives blood only from Caucasian donors. Such banks, however, **issue** blood in accordance with patient's need—regardless of race.

Name(s) of blood bank medical director(s) and/or other Senior Supervisory personnel are shown for each institution.

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

THIRD NATIONAL CANCER CONFERENCE

The American Cancer Society and the National Cancer Institute will co-sponsor the Third National Cancer Conference which will take place June 4-6, 1956, at the Sheraton Cadillac Hotel in Detroit, Michigan. (See inside back cover.)

Principal lecturers will be Dr. Jacob Furth of Children's Cancer Research Foundation, Boston, who will discuss radiation and neoplasia; Dr. Wendell M. Stanley, Director of the University of California's Virus Laboratory, who will speak on the virus etiology of cancer, and Dr. Fred W. Stewart, pathologist of Memorial Center for Cancer and Allied Diseases, New York, who will speak on factors influencing the curability of cancer.

The major portion of the conference will be devoted to symposia on cancer in various sites. Topics and chairmen of the planning committees for each of the symposia are: breast cancer, Dr. Ian Macdonald; lymphomas and leukemias, Dr. William Dameshek; prostate cancer, Dr. Perry Hudson; cancer of the gastrointestinal tract, Dr. George T. Pack; cancer of the lung, Dr. Eugene P. Pendergrass; chemotherapy in cancer, Dr. C. P. Rhoads; cancer of the female genital tract, Dr. Joe V. Meigs; cancer of the head and neck, Dr. Danely P. Slaughter; and end results, Dr. Michael B. Shimkin.

All physicians are cordially invited to attend.

EVALUATION OF CANDIDATES FOR PORTACAVAL SHUNTS AVAILABLE AT TOURO INFIRMARY

Through the facilities of the Touro Infirmary Cardiac Research Laboratory, arterial oxygen determinations, cardiac catheterization for the clinical diagnosis of heart diseases, and hepatic vein catheterization for evaluation of candidates for portacaval shunts are now available at Touro

Infirmary. These studies will be conducted by physicians in New Orleans who have had training and experience in performing these procedures.

Because these procedures are available through research facilities supported by a research grant from the John A. Hartford Foundation, New York, no charge will be made to these patients.

For those patients who are hospitalized solely for the research diagnostic procedures and patients who are unable to afford hospitalization, funds are also available from the research grant to pay for these days of hospitalization necessary for these studies.

Private patients admitted to the hospital, not solely for these research diagnostic procedures, but who undergo them during the course of their treatment in the hospital, will be responsible for the cost of their hospitalization. In the event these procedures prolong the patient's period of hospitalization, research funds will be utilized to pay for the prolonged period of hospitalization. Patients who upon the completion of their studies require more prolonged hospitalization for either diagnostic or therapeutic purposes will be expected to pay for the additional period of hospitalization.

Further information can be obtained by contacting the Director of Touro Infirmary.

55TH ANNUAL MEETING MEDICAL LIBRARY ASSOCIATION

The Medical Library Association will hold its 55th annual meeting from June 18 to 22 at the Hotel Statler in Los Angeles, Calif. The program will include a tour of the new UCLA Medical Center in addition to addresses by Dr. Charles W. Schilling, U. S. Naval Academy, Dr. W. L. Halverson, Professor of Public Health, U C L A, Dr. Cyril B. Courville, Professor of Neurology, College of Medical Evangelists, Dr. Stafford L. Warren, Dean of the U C L A Medical School and others prominent in the field. Further information can be obtained from Mrs. Ella Crandall, Librarian, Los Angeles County General Hospital, 1200 No. State St., Los Angeles 33, Calif.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The 22nd Annual Meeting of the American College of Chest Physicians will be held at the Hotel Sherman, Chicago, Illinois, June 6 through 10, 1956. The scientific program will include prominent speakers on all aspects of heart and lung diseases. In addition to formal presentations, there will be a number of symposia, round-table luncheon discussions, seminars, and motion pictures.

The Fireside Conferences, which were inaugurated at the annual meeting of the College in 1955 and proved to be so popular, will be repeated. At this session, more than 50 experts will be present to lead the discussions on many subjects of current interest in the specialty of diseases of the chest.

Examinations for Fellowship in the College will be held on Thursday, June 7. On Saturday evening, June 9, more than 150 physicians will receive their certificates of Fellowship at the annual Convocation, which will precede the Presidents' Banquet.

All interested physicians are cordially invited to attend the 22nd Annual meeting of the College; there is no registration fee. Copies of the program may be obtained by writing to the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

RESERPINE HELPS ARTHRITIS, DELIRIUM TREMENS PATIENTS

Reserpine, a tranquilizing drug, has now been used to treat two more disorders—delirium tremens and arthritis.

New York and Los Angeles physicians reported in the Dec. 17 Journal of the American Medical Association using reserpine (Serpasil), a derivative of Rauwolfia serpentina, for two groups of patients. The results warrant further trial of the drug as a method of treating both disorders, they said.

Drs. Milton Avol and Philip J. Vogel, Los Angeles, who treated 24 patients for delirium tremens, said reserpine "greatly shortened" the time necessary to free alcoholic patients of their agitation and hallucinations. In fact, all but three were relieved of their symptoms within 24 hours or less. The others were relieved within 48 hours. The average time was 18 hours.

Paraldehyde, a drug frequently used as a calming agent, takes much longer to produce desirable effects. In addition, chronic alcoholics very quickly develop a tolerance to paraldehyde, so that even large doses are ineffective or only partially effective, they said. Also the odor of paraldehyde pervading the wards is "distressing" to both patients and ward personnel.

NEW TREATMENT OFFSETS DELIRIUM, COMA IN PATIENTS WITH DISEASES OF THE LIVER

A new treatment for cirrhotic patients who become mentally confused or stuporous and are in danger of going into permanent coma has been developed by a Boston physician and two associates.

Writing in the *New England Journal of Medicine*, Dr. W. V. McDermott Jr., of Massachusetts General Hospital, spells out, for the first time, the conditions in which glutamic acid, a compound found in most proteins, can be used to bring cirrhotic patients out of hepatic coma.

Long a confusing clinical syndrome, hepatic

coma occurs when the apparently well-oriented patient with liver disease, one day suddenly becomes unduly drowsy, is aroused with some difficulty, and speaks with slurred or thick speech. After a period of noisy confusion and delirium, unconsciousness sets in.

In certain patients this chain of events can be broken by L-glutamic acid, the Boston medical team has found. These are patients—probably the largest percentage composed of chronic alcoholics—in whom hepatic coma is precipitated by a high protein diet, treatment with a diuretic, or sudden bleeding in the gastrointestinal tract. Their already damaged livers cannot stand the additional strain and they suddenly become confused and disoriented.

CONGENITAL ANAL DEFORMITIES

Congenital deformities of the anal canal have been found in "from 8.7 to 30 per cent of all infants examined," according to Edward F. Sladek, M. D., reporting in *American Journal of Surgery* 90:860 (Nov.) 1955. He notes that "diseased conditions of the anus in infants and young children are present with much greater frequency than is commonly suspected."

"A fissure may be a complication of congenital or other diseased conditions of the anal canal," he says, and suggests that a "more radical approach be given to the problem of anal disease in infants and young children."

MEETING SITE OF THE AMERICAN ASSOCIATION OF BLOOD BANKS CHANGED

The site of the 9th Annual Meeting of the American Association of Blood Banks previously scheduled for Cincinnati, Ohio, November 4-7, 1956 has been changed. The meeting will be held September 3, 4, 5, 1956 at the Somerset Hotel in Boston, Massachusetts. Inquiries should be directed to Miss Marjorie Saunders, Secretary, 725 Doctors Building, 3707 Gaston Avenue, Dallas, Texas.

—o—

BOOK REVIEWS

Potassium Metabolism in Health and Disease; by Howard L. Holley and W. W. Carlson, New York—Grune and Stratton, 1955, Pp 131, Price $4.50.

The book is commendable for a short, but not necessarily inexpensive, look at potassium metabolism. It is stronger on symptomatology of hypokaliemia than many. This is set off with adequate coverage of the pharmacodynamics of potassium. Potassium as an activator of enzyme systems is stressed in the light of the possible relation to muscle strength.

Loss of potassium through the kidney because of cortical hormone (stress) is well treated. In general all hormone action is well done. The other avenues of potassium loss are described in detail and the discussion of patients is adequate.

The book is completely lacking in the presentation of mechanisms for ion transport. This weakens the book's advantages for medical groups. The authors seem to avoid these mechanisms in that they hardly mention Darrow's ion exchange in muscle or Berliner's discussion of how alkalosis drains off potassium through the kidney.

The worst feature is the complete absence of cited references. The reader has no way of evaluating the ideas presented, many of which are given without evidence.

ALAN G. C. WHITE, M. D.

Doctors in the Sky; The Story of the Aero Medical Association; by Robert J. Benford, M. D., with Foreword by John F. Fulton, M. D., Charles C Thomas, Springfield, Illinois. 1955 Pp 326. Price $8.75.

This is an account of the formation and of the activities of the Aero Medical Association for its first 25 years. Tribute is paid to the founder, Dr. Louis H. Bauer, and to the various individuals who succeeded him in guiding the development of the Association. Short biographies of the successive presidents are presented as are anecdotes relating to members and to meetings. For the most part it is a direct, factual, and chronological account and serves as a good documentary history of the men who were important in aviation during the last 25 years. As such, it will interest those who participated in the progress. It is not a history of the progress of aviation. The volume would have been of more general interest if the author had included more material relating to the contributions of the various individuals to aviation rather than to the activities of the Association. This may be an unfair criticism, however, since the author has succeeded in his primary objective of giving an account of the activities of the Association.

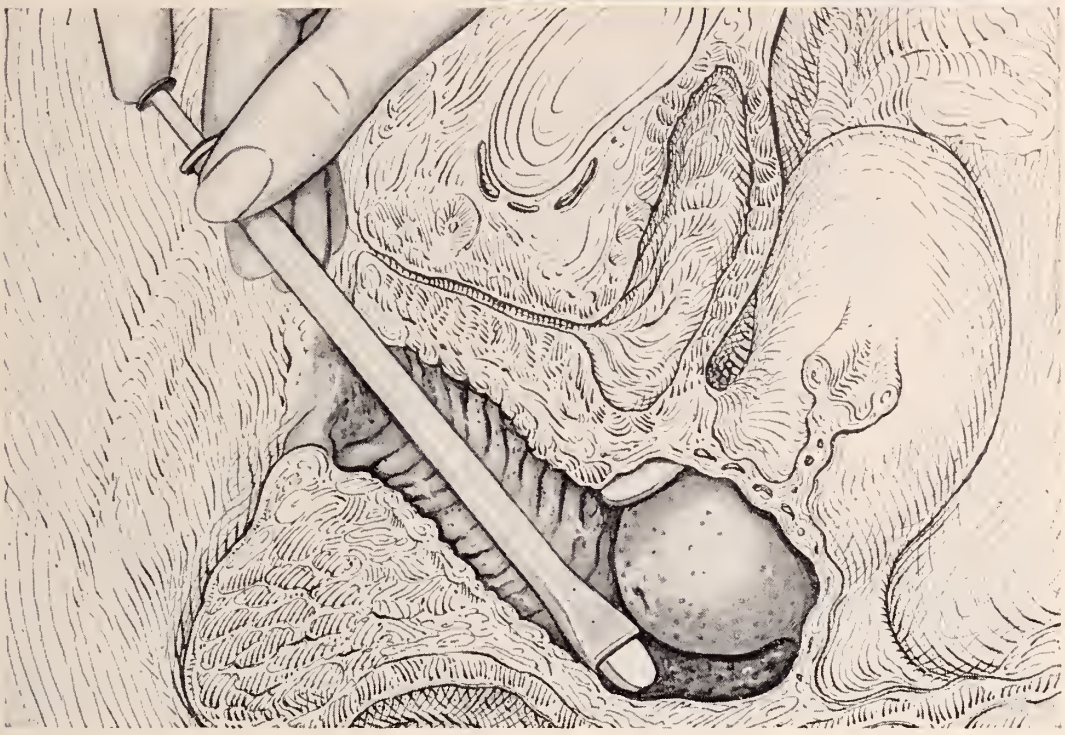
H. S. MAYERSON, M. D.

PUBLICATIONS RECEIVED

W. B. Saunders Co., Phila.: A Modern Pilgrim's Progress for Diabetics, by Garfield G. Duncan, M. D.; Diseases of the Chest, by H. Corwin Hinshaw, M. D., and L. Henry Garland, M. B.

Charles C Thomas, Publisher, Springfield, Ill.: Clinical Management of Renal Failure, by Maurice B. Strauss, M. D., and Lawrence G. Raisz, M. D.; Allergy in Childhood, by Jerome Glaser, M. D.

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New Intravaginal Applicator for Improved Treatment of Vaginitis

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[1]January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.

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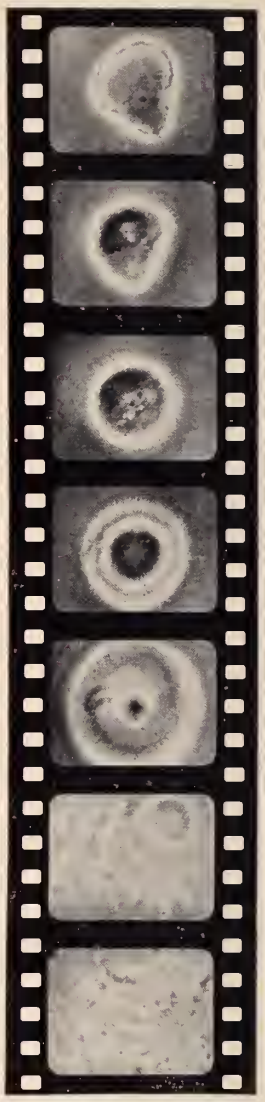
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WITHIN 15 SECONDS' CONTACT WITH VAGISEC LIQUID



Top to bottom:
2 sec. CONTACTS
4 sec. COMPLEXES
6 sec. DISSOLVES
8 sec. DENATURES
10 sec. SWELLS
15 sec. EXPLODES
16 sec. SCATTERS

WITH THE Davis technique,† using VAGISEC® liquid and jelly, flare-ups of vaginal trichomoniasis rarely occur. VAGISEC liquid actually explodes trichomonads within 15 seconds after douche contact.[1] Better than 90 per cent apparent cures follow use of this new trichomonacide,[2] developed as "Carlendacide" by Dr. Carl Henry Davis, noted gynecologist and author, and C. G. Grand, research physiologist.[3]

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No other agent or combination of agents kills the trichomonad in this specific fashion or with the *speed* of VAGISEC liquid.[3] When the patient uses VAGISEC jelly as well — the recommended routine — these good effects continue indefinitely.[4]

Reaches hidden trichomonads — Unlike many agents, VAGISEC liquid thoroughly penetrates and dissolves the cellular debris and mucoid material lining the vaginal surface.[3] It reaches hidden trichomonads — often the cause of treatment failure — as well as parasites swimming freely in the canal.

The Davis technique — Office therapy with VAGISEC liquid is combined with home treatment. Both liquid and jelly are prescribed.

OFFICE TREATMENT — *Wipe vaginal walls dry with cotton balls, then wash thoroughly for about three minutes with a 1:250 dilution of* VAGISEC *liquid. Remove excess fluid with cotton balls. Dr. Davis recommends three treatments the first week, two the second and one the third.*

HOME TREATMENT — *Patient douches with* VAGISEC *liquid at night and inserts* VAGISEC *jelly every morning except on office treatment days, through two menstrual periods. Douching is contraindicated for pregnant women.*

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Active ingredients in VAGISEC liquid: Polyoxyethylene nonyl phenol, Sodium ethylene diamine tetra-acetate, Sodium dioctyl sulfosuccinate. In addition, VAGISEC jelly contains Boric acid, Alcohol 5% by weight.

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†Pat. App. for

References: 1. Davis, C. H.: J.A.M.A. *157*:126 (Jan. 8) 1955. 2. Davis, C. H.: West. J. Surg. *63*:53 (Feb.) 1955. 3. Davis, C. H., and Grand, C. G.: Am. Jour. Obst. & Gynec. *68*:559 (Aug.) 1954. 4. Davis, C. H. (Ed.): Gynecology and Obstetrics (revision), Hagerstown, Md., W. F. Prior, 1955, vol. 3, chap. 7, pp. 23-33.

All the benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress



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Each tablet contains:
Methscopolamine bromide ..... 2.5 mg.

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Each 5 cc. (approx. 1 tsp.) contains:
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Variety is the "spice" of the bland diet...

Variety in taste and texture of foods must become the "spice" of a bland diet now that your patient can't have sharp seasonings and strongly flavored vegetables. These "do's" will help keep his diet tempting to both eye and palate.

For the "meat" of the meal—

Suggest that beef, lamb, and poultry be roasted or broiled and seasoned with salt and mild herbs.

Meat patties stay tender when crushed corn flakes and a little water are added to the finely ground beef. Salt and a hint of thyme or marjoram give savor.

Fish soufflé—flaked fish in any soufflé recipe—is a delicate delight when the top is crisped with cracker meal and butter.

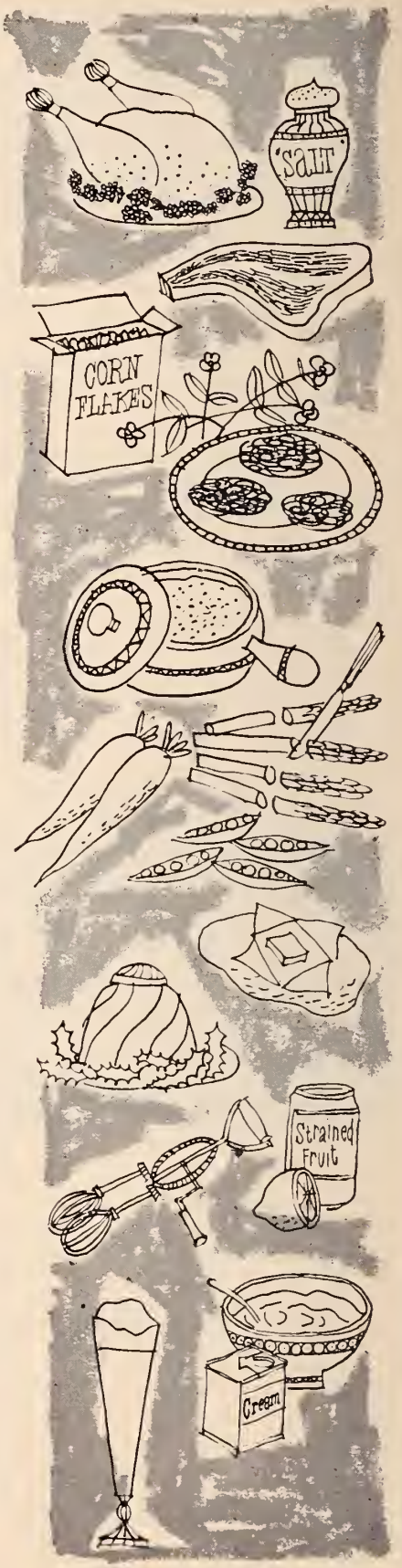
Add the "trimmings" with imagination—

Vegetables such as string beans, peas, asparagus tips, and carrots may be cooked and served whole if young and tender—otherwise pureed. Potatoes may be boiled, baked, or mashed.

Salads of molded gelatin are pretty to look at—better to eat. Your patient may like one of strained beets livened with lemon juice, chilled, and served on shredded tender lettuce.

For dessert he can try applesauce added to whipped lime gelatin, chilled and topped with custard sauce. Or for a party touch, sweeten chilled strained fruit, add a squeeze of lemon, and fold into whipped cream or whipped evaporated milk.

These "diet do's" will help your patient discover new combinations of acceptable foods. And with a glass of beer* —at your discretion—to add zest, he'll find his diet interesting and ample without straying from your instructions.



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*pH—4.3 (Average of American Beers)

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References: 1. Bunim, J. J., et al.: J.A.M.A. 157:311, 1955. 2. Forsham, P. H., et al.: Paper presented at First Internat. Conf. on Prednisone and Prednisolone, New York, May 31-June 1, 1955. 3. Perlman, P. L., and Tolksdorf, S.: Scientific Exhibit presented at A.M.A. Annual Meet., Atlantic City, June 6-11, 1955.

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Designed for all infant feeding from birth to the end of the first year, Baker's Modified Milk is a time-saver for busy physicians and busy hospitals. Simply dilute Baker's to prescribed strength with water.

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(Normal dilution for liquid provides 20 calories per liquid ounce.)

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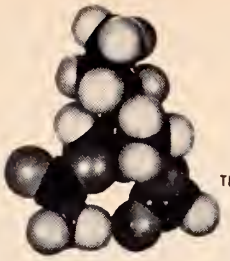
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1. Selling, L. S.: J.A.M.A. **157:** 1594, 1955. 2. Borrus, J. C.: J.A.M.A. **157:** 1596, 1955.

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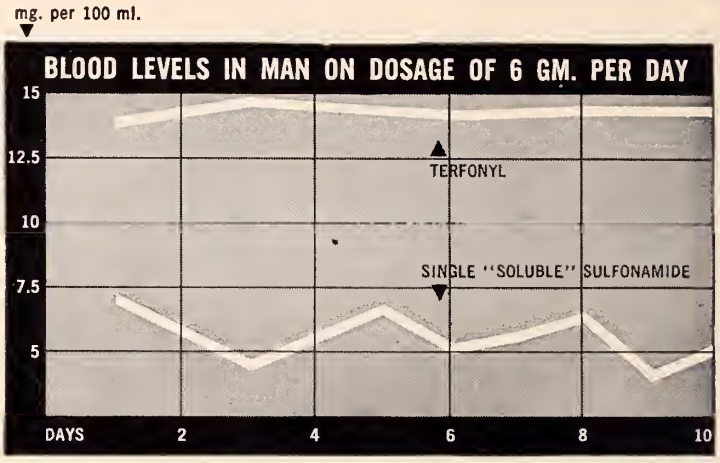
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– After Lehr, D., Modern Med. 23:111 (Jan. 15) 1955.

Terfonyl is absorbed as well as single "soluble" sulfonamides, but is eliminated at a slower rate. For this reason, Terfonyl blood levels are much higher.

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Long-term study has now shown that the failure rate with BUTAZOLIDIN in rheumatoid arthritis, and particularly in rheumatoid spondylitis, is significantly lower than with hormonal therapy.[3]

(1) Poyne, R. W.; Shetlor, M. R.; Forr, C. H.; Hellbaum, A. A., ond Ishmoel, W. K.: J. Lab. & Clin. Med. 45:331, 1955. (2) Bunim, J. J.; Willioms, R. R., ond Block, R. L.: J. Chron. Dis. 1:168, 1955. (3) Holbrook, W. P.: M. Clin. North Americo 39:405, 1955.

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—the buffering action of the phosphates, organic acids and tannins in wine induces a sustained increase in gastric secretion and gastric motility

—wine offers a quickly metabolized source of nutrient energy

—wine possesses significant diuretic, vasodilating and relaxing properties—ideal for bedtime sedation

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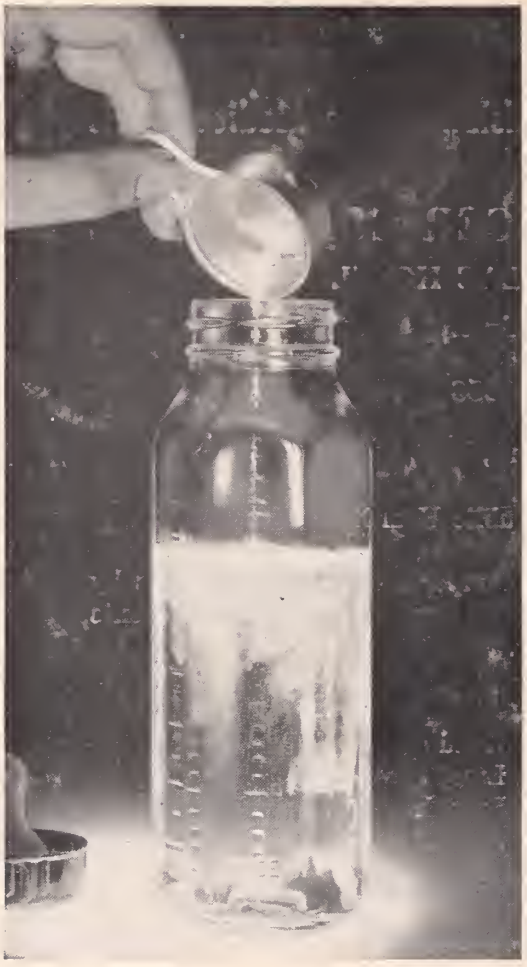
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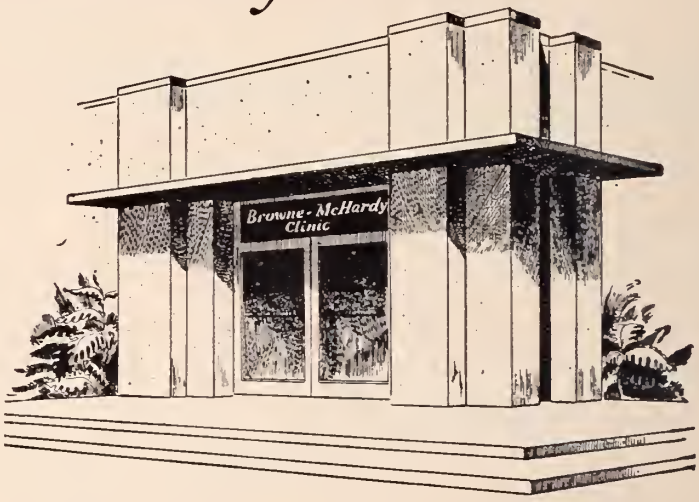
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1. Spies, T. D., et al.: GP 12:73, No. 1, 1955. 2. Boland, E. W.: J.A.M.A. 160:613, 1956. 3. Gillhespy, R. O. Lancet 2:1393, 1955.

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1. Bollet, A. J., Black, R., and Bunim, J. J.: *J.A.M.A.* **158**: 459, June 11, 1955.

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44.0% - 40% for a child (age variation)

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4.6 million for a man,
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ANEMIA IS NEVER A DIAGNOSIS but a laboratory **finding** just as headache is a **symptom** and hepatomegaly is a physical finding. Anemia may be dignified by calling it a SECONDARY ANEMIA but one must not stop there or the patients' health and/or life may be jeopardized. Therapy directed toward "treating the red blood count" may only mask the condition.

A PRIMARY CAUSATIVE DIAGNOSIS MUST BE ESTABLISHED. The earliest finding of gastrointestinal cancer may be slight anemia and the blood findings may be "cured" by transfusion but the cancer grows larger. The cure of this anemia comes only through diligent examination leading to the real diagnosis, not of anemia, but of, for example, cancer of the right colon and following through with immediate surgery. The diagnosis of another type of case is not iron-deficiency anemia but cirrhosis with bleeding esophageal varices and proper medical regime for cirrhosis is begun. Another finding might be hypochromic normocytic anemia with a **diagnosis** of a carcinoma of the kidney. Normocytic normochromic anemia is a finding of multiple myeloma or Lupus Erythematosus. Multiple myeloma and Lupus Erythematosus are the diagnoses.

The laboratory determination of hematocrit, HGB or RBC may establish the finding of anemia and the Mean Corpuscular Hemoglobin (MCH), and Mean Corpuscular Volume (MCV) may establish the morphologic type; EACH TYPE HAS MANY PRIMARY CAUSES, however, and it is these causes which must be sought. There is no laboratory test that takes the place of a **careful history** and **complete physical examination.** This information is then supplemented with such findings as no free hydrochloric acid in the stomach or increased osmotic fragility or positive test for sickling or increased urine urobilinogen, or occult blood in feces, etc. Bone marrow study may aid in (1) classifying the anemia (2) indicating prognosis, or (3) revealing the definitive cause.

Remember it is far less expensive and more important in the long run to determine the type and cause of the Anemia, than to "treat the red cell count" with a variety of expensive "shot gun" drugs and injections. **DISCOVERY AND CORRECTION OF THE CAUSE OF THE ANEMIA, MAY SAVE THE PATIENT'S LIFE AND MONEY.**

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DIAGNOSIS AND TREATMENT OF GOUT *

JOHN H. TALBOTT, M. D. †
BUFFALO, NEW YORK

Recent advances in the diagnosis and treatment of gout, together with the resurgence of interest in a variety of joint diseases, have focused attention once more upon this specific metabolic dyscrasia, which is encountered frequently by the specialist and the general practitioner. I have been interested in this disease for more than two decades and like those of you who are particularly interested in this malady, continue to be surprised by at least two items that may be documented. The first is the failure of physicians to consider gout in the differential diagnosis of each mild or severe joint affliction, particularly in the male. Secondly, the lack of appreciation by physicians of the management once the disease has been suspected. Gouty arthritis is probably the easiest joint disease to treat among the more common arthritic disorders. Surely, it is the most rewarding to the physician as well as to the patient. Hence, the diagnosis and the treatment comprise the bulk of what I have to say at this time.

DIAGNOSIS

The finding of a few white bumps in the ear of a male who has had joint distress is pathognomonic of gout. But I do not see this manifestation in a great majority of patients. Tophi in the ears usually appear after the disease has been present for a decade or more and the patient has had a goodly number of acute attacks of gouty arthritis. The disease should have been recognized and controlled before the development of subcutaneous tophi.

The observation concerning familial incidence of disease generally, in taking a complete history in a patient, usually is not rewarding. From experience we tend to overlook this item. If we fail to inquire regarding the family history in a patient suspected of having gout, however, we may miss an important clue. The incidence of gouty arthritis in families is significant and should not be overlooked. In addition, the concentration of uric acid in the serum of relatives of gouty patients, relatives who have been termed nonaffected relatives, because they have had no joint distress, likewise is significant. An illustration may be helpful:

In 1948, I was requested to provide terminal medical care for a patient in advanced renal insufficiency who had had acute attacks of gouty arthritis for almost two decades. Following the initial shock of his death, complete cooperation with

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Some of the researches described have been supported in part by Grants-in-Aid from the Western New York Chapter of the Arthritis and Rheumatism Foundation and from the National Institute of Arthritis and Metabolic Disease, Bethesda, Maryland.

his brothers, sons and nephews furnished revealing data. Two of the three brothers, both sons, and both nephews, six out of seven investigated, had an elevated uric acid in the serum. There was no past history of arthritis in any of them and x-rays of the feet and hands in each instance were negative. These males have been seen at intervals of from eighteen to twenty-four months and the increased concentration of uric acid in the serum has been confirmed. One of the brothers, who was 50 when he was first seen, had uric acid concentrations of 8.6, 7.4 and 7.0 mgm., respectively, between 1948 and 1953. In the fall of 1954, six years after the initial determination, his family physician reported the sudden onset of acute distress in the great toe. The diagnosis of acute gout was suspected within a matter of a few hours, because the family physician was aware of the presence of gout in the family and my interest in checking the serum levels from time to time. The patient was treated promptly with Colchicine, lost only one day from his office and has been symptom-free during the past eighteen months. He takes two Colchicine daily as a prophylactic measure. I continue to see the sons at regular intervals and the concentration of uric acid in the serum in each instance remains in the gouty range. Meanwhile, they continue to be symptom-free without any specific or general measures followed. In other words, I have considered it neither desirable nor necessary to place any of the nonaffected relatives with an elevated uric acid on any regimen of management.

The next patient is an equally good illustration. A hale, hearty, and well developed male had had acute distress in his elbow for a few days with the diagnosis of "tennis elbow". He had suffered no injury to the elbow and his family doctor made the diagnosis of olecranon bursitis by exclusion. Rather than treat the disturbance empirically, he was referred to the hospital for study. Gout was suspected but not too seriously. Inquiry was made regarding the family history of gout and it was denied emphatically. In fact, there was a little resentment that I should have suspected gout in this man. The concentration of uric acid in the serum was nearly 9 mgm. The cardinal signs of inflammation were present. I found no other evidence of joint disease and decided to try a therapeutic, as well as diagnostic, course of Colchicine. The response was gratifying and twenty-four hours later there was only slight residual in the elbow. At the time of discharge the diagnosis of gout was no longer resented, especially because an optimistic prognosis was given. The patient agreed to inquire specifically among his relatives regarding the possibility of gout having been in the family. Six months later he called me up and was pleased to report that his grandfather was known to have had gout and there was some question that his father had it in a mild form also.

At the initial examination of a patient suspected of gout, there are three ancillary items that have been helpful in providing confirmatory evidence. These are: the passage of uric acid gravel or a uric acid stone, albuminuria and hypertension respectively. We have several patients in our series who have passed a uric acid stone before the first attack of acute gouty arthritis. In two instances, stones were passed more than a decade before the joints were the center of attention. I think we have evidence now to explain this phenomenon. Uric acid is a naturally occurring substance in the healthy as well as the sick. It is one of the end-products of purine metabolism. Evidence gained during the past ten years, from isotope studies particularly, lends support to the presumption that the increased concentration of uric acid in the serum and body fluids is a result of increased production, not decreased excretion or decreased destruction by the body. The excellent studies of Stetten and his associates have demonstrated that in some gouty patients at least, the formation of uric acid proceeds through a more direct pathway than in normals. These studies have utilized glycine labeled with N-15. In our labora-

tory these observations have been confirmed. Other evidence in support of an increased formation of uric acid, an integral aspect of the pathogenesis of the disturbance, has been available for several decades. Almost from the beginning of modern clinical biochemistry, an occasional patient with gout was observed to excrete more uric acid than a control subject on a constant diet. We reported several such instances several years ago and more recently this has been confirmed by others. The increased formation of uric acid by the body is believed to be the metabolic defect that is transmitted in the family. The nonaffected relatives with an increased concentration of uric acid in the serum have the defect but it is not of a magnitude, in most instances, to produce acute attacks of gouty arthritis. This defect probably is present from birth. It is not of clinical significance until the second or third decade of life or later. The increased production of uric acid is so slight that the body is able to handle the excess for a period of years. If the defect is very slight the body presumably may handle the defect throughout life. It should be noted that we have had several patients who have had their first attack of gouty arthritis in the seventh and eighth decades of life. But let us not deviate too far from the concept of increased production of uric acid by the body. The increased production of uric acid leads to an increased concentration of uric acid in the serum and an increased excretion by the kidneys with several possible sequelae. If an adequate amount of urine is available, the excess uric acid is excreted in solution without demonstrable harm. If the quantity of urine excreted is inadequate to dissolve the uric acid that is presented to it for excretion, precipitation in the tubules or the renal pelvis is a possibility. Furthermore, deposition of uric acid in the tubules and in the pelvis certainly may precede the attacks of acute arthritis.

The second ancillary item is the presence of albuminuria. I have seen several patients who have had albuminuria one or more years before the appearance of gout. I believe that this is a result of the mechanical irritation of the uric acid crystals in the renal tubules. An elevation of blood pressure is the third ancillary item. More than 25 per cent of the patients with gout have a blood pressure that is above normal. It is essentially a benign type of hypertension and, with but one exception, does not appear to be malignant in type. Of course, the occasional patient with gout and severe renal disease may develop a pseudomalignant type of hypertension as a result of the renal insufficiency. Nor does this run the course of the garden-variety type of malignant hypertension.

The above items are part of the history and should not be overlooked. The greatest help in diagnosis, however, is obtained from the clinical characteristics of the acute attack. The sudden onset of acute distress in one of the peripheral joints of the body in a male, points to one diagnosis only. Cardinal signs of inflammation may be present with an elevation of temperature, an increase in the sedimentation rate and a leukocytosis. If the patient is not seen at the time of acute symptoms, the severity of distress may be recounted vividly by the patient. The other types of joint disease commonly encountered, acute rheumatic fever, acute rheumatoid and osteoarthritis, usually are not associated with such acute distress. Clinical observation still is useful in the practice of medicine. If the acute attack appears in the foot, the patient may resort to several devices to obtain relief. One is the operation upon the shoe which results in the "gouty shoe". If the shoe is slit or the medial aspect about the great toe is perforated, suspect gout.

The concentration of uric acid in the serum may be extremely helpful in diagnosis, but like any other laboratory procedure, should be used for confirmation of a diagnosis, not to make a diagnosis. The uric acid may be elevated in normal persons for reasons not entirely clear to me, as well as in some patients with other types of joint disease. If the patient is

suspected of having gout, and the uric acid in the serum is above 6 mgm., this is confirmatory evidence. Note that serum or plasma rather than whole blood should be used for the determination. The patient should be taking no antirheumatic drug within a forty-eight hour period of collecting blood for the determination. Each of the nonspecific agents commonly used in the treatment of joint disease, such as salicylates, phenylbutizone, and the adrenal steroids cause an increased excretion of uric acid from the body, depress the concentration in the serum and complicate the interpretation of the laboratory results.

Colchicine, on the other hand, is specific for acute gouty arthritis and has no significant antiarthritic effect in other types of joint disease. The response to Colchicine when given orally or intravenously may be extremely helpful, diagnostically as well as therapeutically. But let us return to the concentration of uric acid in the serum. In our clinic, the patient with gout has an increased concentration of uric acid in the serum above 6 mgm., irrespective of the stage of the disease, and irrespective of the time in relation to the acute attack. The only agents that modify the concentration are those that lead to an increased excretion of uric acid by the body, that is, the antirheumatic agents other than Colchicine. Colchicine has no demonstrable effect upon uric acid metabolism or the concentration of uric acid in the serum. In a large number of determinations we have found that about 95 per cent of the patients with gout show an increased concentration of uric acid above 6 mgm., except as noted above. On the other hand, not more than 4 or 5 per cent of nongouty patients have a concentration above 6 mgm. This procedure then is very helpful.

The x-ray changes in gouty arthritis have been over-emphasized. In the early years of the disease, x-ray changes are not to be expected and one may make a diagnosis with completely negative joints by x-ray. Furthermore, in rheumatoid arthritis there may be punched-out areas in some joints which lead the unsuspecting to consider gout. Rheumatoid arthritis usually lends itself to diagnosis from the clinical findings and the presence of a few punched-out areas in the bones of a patient with rheumatoid arthritis should not mislead the physician.

The extensive changes about the metatarsal-phalangeal joint of the great toe are apparent in Figure 1. Note, however, that many of the other joints are essentially untouched.



Figure 1. X-ray of the left foot of a male aged 77 who had had intermittent attacks of acute gout for more than 30 years. Moderately advanced roentgenographic changes in diverse parts of the extremities were noted. There are many osseous tophi of varied sizes, narrowing or obliteration of some joint spaces, some overgrowth of bone and decalcification.

In Figure 2 similar extensive changes are noted about some of the joints, other joints are essentially normal.

As the disease progresses more joints may be involved, (Figure 3) yet others appear essentially normal by x-ray.

In the late advanced stages, amputation



Figure 2. X-ray of the hands of patient with advanced changes of tophaceous gouty arthritis.



Figure 3. X-ray of the hands of a male patient aged 23 with advanced and extensive tophaceous gout who suffered involvement of a great many of the joints of the upper and lower extremities. Intermittent attacks of acute arthritis had been present for more than 8 years. Several of the joints, particularly the metacarpal-phalangeal joint of the index finger on the left, are obliterated by urate deposits. There is expansion of the cortex of the third phalanx on the right. The terminal phalanx on the right has been amputated. This was desirable for cosmetic reasons as well as because it was functionless.

sometimes is necessary as illustrated in Figure 4.

Although the hands and feet are most apt to be involved, other joints may be the site of well developed tophaceous deposits. Figure 5 is the x-ray of an ankle. Several osseous tophi are seen in the joint as well as adjacent to the articular surface.

The elbow shown in Figure 6 has a large subcutaneous tophus as well as extensive osseous tophi.



Figure 4. X-ray of the hands of a patient aged 38 with moderately advanced chronic tophaceous gout. Symptoms of intermittent acute gouty arthritis have been present for 18 years. Extensive osseous involvement is apparent. This patient has huge subcutaneous tophi overlying several of the osseous tophi.

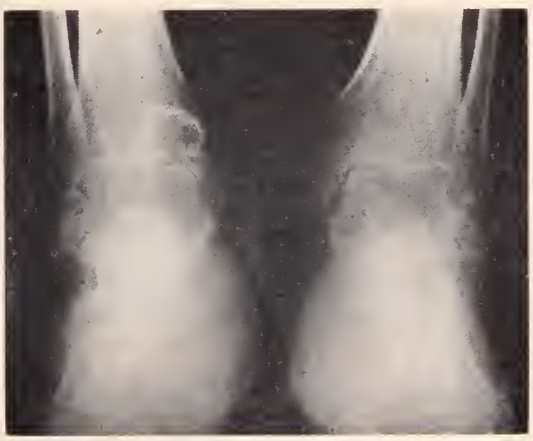


Figure 5. X-ray of the ankles of a patient aged 50 who has advanced tophaceous gout. Symptoms of acute gout had been present intermittently for more than 20 years. Urate tophi are noted at articulations in bone structures not adjacent to articulating surfaces. The tophi have broken through the cortex and encompass soft tissues. There is destruction of the articular spaces, sclerosis and overgrowth of bone.

In Figure 7 osseous tophi are present in the anatomical neck of the humerus.

At the present time most of our x-rays of joints are taken by the magnification technique. This technique does not show up to advantage on lantern slides but upon direct inspection of the x-ray film, it is very helpful. The detail is increased by 100 per cent.

TREATMENT

The prognosis in this chronic disease is excellent. With the earlier and increased



Figure 6. X-ray of the elbow. Several large urate tophi in the olecranon process are evident. There is diffuse calcium deposition in the large subcutaneous tophus which completely surrounds the elbow.



Figure 7. X-ray of the right shoulder. Osseous tophi in the anatomical neck of the humerus are evident.

recognition, the proportion of those severely afflicted has decreased significantly. In the series of patients that I have been following during the past decade, less than 5 per cent have died prematurely or will die prematurely because of the disease or any of its complications. More than 90 per cent of those afflicted suffer surprisingly little and are able to lead normal lives if they follow a relatively simple schedule of management. We see an occasional patient who represents an exception to this generalization. Strangely enough two of the three most unhappy patients with gout whom I can recall are physicians who refuse to follow either my medical advice or the advice of any other physician. Presumably, they wish to be their own doctor and have not fared well as a result. One physician became a heroin addict because he preferred this agent to Colchicine in the treatment of his acute attacks. The other physician prefers several days of incapacity, three or four times a year because he cannot be bothered to take one or two Colchicine and Benemid tablets each day.

Over and above these unhappy examples are the vast majority of gout patients, who are cooperative and delighted to follow a relatively simple regimen in return for the opportunity to live a normal life and pursue a gainful occupation. This optimistic prognosis has been amply enhanced since 1950 when Benemid was introduced. Even before 1950 the agents that were available contributed greatly to the treatment and prevention of acute arthritis in those moderately or severely afflicted. In others, the disease appeared low-grade and did not progress in a detectable manner decade by decade. Probably in this category it made little difference what dietary or therapeutic regimen was recommended beyond that of sensible living. Mr. H. C. is an example.

This patient was referred to me nearly seven years ago at the time of his first attack of gout. He was the manager of a trucking company who could give as well as take it from his truck drivers. I think that his first attack of acute gouty arthritis caused him more misery than he had ever experienced before in his life. He felt that the devil was beginning to balance the books prematurely. With Colchicine, we were able to relieve his joint symptoms rapidly and forty-eight hours later he was ready to leave the hospital with all evidence of the acute attack gone. I recommended that he lose 25 lbs. in body weight because he was obese, a high fluid intake, alcohol in moderation only, and two Colchicine a day. The transformation that took place during the next few months surprised his friends as well as his physician. He lost the desired weight, began for the first time in 25 years to lead a sensible life, became a teetotaler, developed a profound interest in a Boy's Club and has been the epitome of rightousness for several years. With two

Colchicine a day he has not had a recurrence of his acute arthritis and for reasons not entirely clear to me, the concentration of uric acid in the serum has steadily fallen. This trend of the uric acid in the serum without the use of agents directed against uric acid metabolism is unique in my experience.

The management of acute and chronic gout is probably more satisfactory than the management of any other chronic joint disease as was noted in the introduction. There is nothing more gratifying than to find some poor soul in excruciating pain, appetite gone, having chills and fever, unable to sleep, unable to work, and thoroughly miserable day after day, and then have him undergo a remarkable transformation within twenty-four hours and be back at work within a few days. This may be accomplished with oral or intravenous Colchicine in a high percentage of instances, with Phenylbutizone in a majority of instances and with large amounts of ACTH or prednisone in a few instances. My preference for the several agents is in this order. If the acute attack has been present, untreated, or poorly treated for one or more days, recovery may be less dramatic. If the joint distress, having been present for not more than twenty-four hours, does not respond to full doses of Colchicine, the diagnosis should be questioned or some complication should be sought. If distress has been present for longer than twenty-four hours, Colchicine supplemented by Phenylbutazone or ACTH should be tried. During convalescence from acute gouty arthritis, early ambulation is to be encouraged. There are no other specific measures to be recommended for the treatment of the acute episode. General measures include, an abundance of fluids, protection of affected joints, and an ad lib diet.

The management of the intercritical period, which should encompass most of the time for all patients with gout, comprises a few drugs and a few prohibitions, in short, a simple regimen. A high fluid intake is to be stressed. This aids in the elimination of uric acid from the body, a particularly important feature when Benemid is prescribed. Weight reduction, if indicated, should be insisted upon. Substances high in purines, such as liver, kidney, and sweetbreads, should be avoided. This entails no hardship. The patients are permitted red meat once a day if they wish and alcohol in moderation. I have many instances of patients taking alcohol daily as well as Colchicine, experiencing little or no distress from gout, year by year. On the contrary, I see an occasional patient who prefers to stay away from alcohol as well as Colchicine and who gets into trouble from time to time. The amount of physical activity should be determined by factors other than the presence of gout. Hunting, fishing, and other forms of strenuous activity are permitted.

It is believed that there are only two drugs that should be used regularly in the period between attacks of acute arthritis. These are Colchicine, one of the oldest specific drugs in the pharmacopeia and Benemid, one of the newest. For patients moderately afflicted with gout, one or two tablets are prescribed daily throughout the year. Those severely afflicted take two or three tablets daily. Gastrointestinal tolerance is the determining factor for this group. Chronic intolerance to Colchicine does not develop and acute toxicity from Colchicine is confined to gastrointestinal irritability. The patients mildly afflicted, which comprise at least a fourth of the patients in my series, may take Colchicine either daily or occasionally. Colchicine reduces significantly the incidence of acute attacks regardless of the severity of the disease. Equally important, however, in prophylaxis, is the administration of Benemid.

The introduction of Benemid nearly six years ago, filled a void in the therapeutic armamentarium that had been recognized for a long time. Uricosuric agents were available before Benemid, such as salicylates and cincophen, but no single agent prior to 1950 was a practical answer to the quest for a substance that would achieve satisfactory elimination of uric acid from the body when administered in

relatively small amounts and yet be endowed with negligible toxicity. The salicylates especially have enjoyed a favorable reputation as uricosuric agents but in order to achieve a good therapeutic effect, toxic or subtoxic levels must be given daily; that is, from 4 to 8 gm. a day. Even in this quantity the effect upon uric acid may be less than that of not more than 1 or 2 gm. of Benemid. Furthermore, the possibility of escape from salicylates is real. No escape from Benemid has been recorded. Approximately 1 gm. of Benemid results in satisfactory uricosuria in most patients if taken daily. The decrease in the concentration of uric acid in the serum of 25 to 35 per cent with a concommittant increase in excretion in the urine follows.

Many patients with gout have a concentration of uric acid in the serum that ranges between 8 and 10 mgm. Under the influence of Benemid the concentration is in the normal range or near the normal range.

Mr. F. D. is an example. He was seen first in 1947. The concentration of uric acid in the serum ranged from 6 to 9.2 mgm. during the next six years. He has not lost any time from work since he was seen first; meanwhile, he has been on Colchicine daily until two years ago at which time he was placed on Benemid. In 1952 and 1953, although he was not losing any time from work, he was taking more Colchicine early in the course of acute attacks and it was decided to place him on Benemid, 1.5 gm. a day at first, and then 1.0 gm. thereafter. He has taken extra Colchicine on one day only during the past year.

During the five and one half year period that Benemid has been available, the favorable results have predominated; the untoward results have been minimal. Benemid may increase slightly the tendency to form uric acid stones. However, it should not be forgotten that approximately 15 per cent of all patients with gout have a history of calculi independent of administration of uricosuric agents. Gastrointestinal irritability appears in some on Benemid but usually can be corrected by intelligent management. An occasional patient will develop a skin rash. The vast majority of patients tolerate the drug in an excellent fashion. At this stage of our clinical investigation of the value of Benemid, it is recommended that those severely afflicted with gout remain on Benemid as well as Colchicine for an indefinite period. Those mildly afflicted are permitted considerable freedom. Patients with moderate gout may use Benemid from time to time, having been on it regularly for a period of two or three years, meanwhile maintaining one or two Colchicine tablets daily. Since the escape from Benemid is rapid and return to the gouty range follows within twenty-four hours after ingestion of the last Benemid tablet, I do not believe that a person moderately or severely afflicted should remain off of Benemid for a long period of time even though he may be clinically free from acute attacks. Since gout is a chronic disease, the disturbance of uric acid metabolism persists so long as the patient lives. The threat of an acute attack remains with the increased concentration of urates in body fluids.

And finally a word regarding surgery. We still find it necessary, in those severely afflicted, to remove large tophi or useless digits. In each instance, these patients have had the disease for long periods of time, usually twenty or more years, with extensive subcutaneous and osseous tophi and chronic sinus formation.

If a person must have a joint disease, is it not preferred to have gout, take a few pills a day, and live a normal life otherwise?

———o———

A NEW EXPLANATION OF THE ABSENCE OF P-WAVES IN A CASE OF TAWARA-NODE RHYTHM WITH RETROGRADE CONDUCTION

J. T. PETERS, M. D.
SODUS, N. Y.

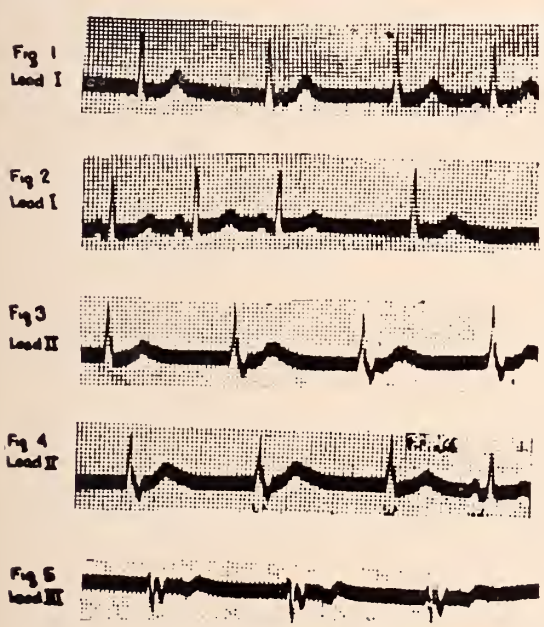
The electrocardiogram (Figures 1 to 4) shows that the explanations given for the phenomenon, mentioned above, by Paul White[1] and Charles Friedberg[2] in the

recent editions of their textbooks, do not apply to this case. Both standard works give excellent information for reading of the majority of unusual patterns of electrocardiograms. In most of the numerous smaller books about the essentials of electrocardiography this rare phenomenon is not mentioned.

The patient was a woman, 66 years of age, who had suffered for more than a year from dizziness with slight attacks of dyspnea. Other data from the history have no value for the purpose of this article.

Cases of Tawara-node rhythm with retrograde conduction are rare and the absence in these ECG's of P-waves, is still more rare.

The majority of complexes in the ECG, printed here, show a Tawara-node rhythm with retrograde conduction and with a pulse rate of 54. However, one sees in Fig. 1, 2, and 4 sometimes a positive P-wave showing the action of the sino-atrial node, which therefore is not always superseded by the action of the Tawara-node. In Fig. 1 (lead 1) the P-wave is absent in the third complex. In Fig. 3



(lead II) it is absent in the first complex. In Fig. 4 (lead II) it is absent in the third complex. In the other complexes negative P-waves follow immediately after the R-waves.

Paul White, Charles Friedberg and several others have explained the absence of the P-wave, by supposing that the P-wave is buried in the R-wave. If that explanation was right for this case, one would certainly see a much lower R-wave in Lead II, because a deep negative P would then be buried in a R-wave. This is not the case. Accurate measurements show that all R-waves of the Tawara-node rhythm do not differ in height in the same lead.

We have to look for an explanation which does not require a change in height of the R-waves of the same lead. It seems to me that the correct explanation is as follows: The part of the Tawara-node impulse which goes upward causes, in the majority of complexes, the contraction of the auricle before the sinus-node impulse reaches the auricular musculature. This auricular musculature is then refractory for the later coming sinus-node impulse. However, more rarely the impulses of the Tawara-node and sinus-node reach the auricular musculature at the same time. The electrical phenomena neutralize each other. The result is that in these cases the ECG shows no P-wave.

SUMMARY

A new explanation is given for the absence of P-waves in some complexes of an ECG that shows the Tawara-node rhythm with retrograde conduction.

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AN ANALYSIS OF 2229 AUTOPSIES WITH SPECIAL EMPHASIS ON CIRCULATORY SYSTEM AND ALLIED DEATHS

EPHRAIM LUBRITZ, M. D.*
NEW ORLEANS

This study deals with an analysis of the circulatory system, cardiac, pulmonary, renal, and related deaths autopsied

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at the Touro Infirmary from January 1, 1945, through August 31, 1955. There were 3860 deaths, with 2229 autopsies (55.15 per cent) performed.

Before the actual data collected are presented it should be stated that although Touro Infirmary operates outclinics for white and colored patients, only white patients are admitted to the wards. This is important when comparisons of these data are made with those of other hospitals where admissions are not so restricted.

Of the total deaths, 877 were circulatory in nature, 809 cardiac and 68 pulmonary. Those classified as cardiac included deaths from heart failure and associated conditions, such as uremia, cerebral hemorrhage and thrombosis, hypertension and its complications, rupture of aortic aneurysms, and the like.

The purposes of this study were to determine (1) the relative incidence of the different types of heart disease with special reference to age and sex; (2) the relative incidence of pulmonic embolic phenomena; and (3) other data on such topics as perforated myocardial infarctions, cardiac aneurysm, etc. which could be derived from this study.

Of course, it is obvious that the true incidence of any disease can be determined only by autopsy whether death occurs at

TABLE 1
HEART DISEASE AND ALLIED CAUSES OF DEATH—877 CASES

TYPES	No. of Cases	% of Group	% of Total Group	% of all Deaths	Male	Female
I. Infectious	44		05.45	01.97		
A. Rheumatic	20	45.45	02.47	00.90	10	10
B. Bacterial	8	18.18	00.82	00.36	8	0
C. Syphilitic	6	13.64	00.74	00.27	3	3
D. Myocarditis	10	22.74	01.24	00.45	3	7
Total I	44		05.75	01.97	24	20
II. Noninfectious	765		94.56	34.32	493	272
A. Hypertensive primary	499	65.31	61.76	22.39	315	184
1. Myocardial insufficiency	87	11.38	10.77	03.90	51	36
*2. Coronary sclerosis	192	25.13	23.80	08.61	134	58
3. Cerebral complications; apoplexy, thrombosis, etc.	122	16.00	15.10	05.47	70	52
4. Renal insufficiency	78	10.21	09.65	03.50	42	36
5. Dissecting and other aneurysm of the aorta	20	02.60	02.47	00.90	18	2
*B. Coronary sclerosis	154	20.15	19.06	06.91	116	38
C. Pulmonary hypertension (Cor. Pulmonale)	19	02.48	02.35	00.89	11	8
D. Congenital	54	06.94	06.56	02.38	31	23
E. Miscellaneous	31	04.06	03.83	01.35	18	13
*F. Hypertensive and arteriosclerotic by pathological diagnosis	8	01.05	00.91	00.36	2	6
Total II	765		94.56	34.32	493	272
Total I & II	809			36.30	517	292
III. Pulmonary embolus/ Infarction	68		07.76	03.05	28	40
Totals I, II, III	877			39.35	545	332
All Hypertensive and Arteriosclerotic, *11A2, IIB, & IIF	354	46.33	43.81	16.00	252	102

home, in the hospital, or elsewhere. However, in order to reach a truer relative determination, certain portions of this paper will be denoted where not only the disease was per se the actual cause of demise of the patient, but instances where definite and significant findings were present even though the patient might have died of other and perhaps unrelated causes will be discussed and related data co-ordinated and integrated. (Table 1-A):

This report is mainly divided into three groups: Infectious and noninfectious heart disease and pulmonary embolism. (See Table 1).

1. INFECTIOUS HEART DISEASE

Included in the infectious group are rheumatic, bacterial, and syphilitic heart disease and myocarditis. Of these, there were 44 deaths, or 5.75 per cent of the cardiacs and 1.97 per cent of all deaths.

Rheumatic Heart Disease: In this group of 20 were also included patients with valvulitis from acute rheumatic fever, valvular deformities resulting from repeated rheumatic infections, and probable adhesive pericarditis.[1a, b] However, as may be seen in Table 2, there were 24 more cases with significant findings of rheumatic heart disease who died from other causes, bringing the total of this type of heart disease to 44. The deaths comprised 45.45 per cent of the infectious group, 2.47 per cent of total cardiac deaths, and 0.90 per cent of all deaths.

Of the 44 cases as a whole, 21 were males and 23 females. Among the deaths, 10 males and 10 females were found. The youngest male was 7 years; youngest female 7 years; oldest male was 80 years

TABLE 1-A
HEART DISEASE & ALLIED CAUSES OF DEATH AND PATHOLOGY—956 CASES

TYPE	No. of Cases	% of Group	% of Total Group	% of all Deaths	Male	Female
I. Infectious	77					
A. Rheumatic	44	55.01	05.16	01.52	21	23
B. Bacterial	12	15.58	01.41	00.52	10	2
C. Syphilitic	11	14.29	01.29	00.49	7	4
D. Myocarditis	10	12.97	01.17	00.44	3	7
Total I	77		09.05	03.45	41	36
II. Noninfectious	775					
A. Hypertensive primary	505	65.16	59.27	22.70	320	185
1. Myocardial insuff.	87	11.23	10.21	03.90	51	36
*2. Coronary sclerosis	192	24.80	22.53	08.61	134	58
3. Cerebral complications; apoplexy, thrombosis, etc.	122	15.74	14.32	05.47	70	52
4. Renal	78	10.06	09.15	03.50	42	36
5. Dissecting and other aneurysm of the aorta	26	03.35	03.05	01.12	23	3
*B. Coronary sclerosis	154	20.00	18.07	06.91	116	38
C. Pulmonary hypertension (Cor. Pulmonale)	20	02.58	02.35	00.89	12	8
D. Congenital	57	07.78	06.69	02.56	34	23
E. Miscellaneous	31	04.00	03.64	01.39	18	13
F. Hypertensive and Arteriosclerotic	8	01.03	00.94	00.36	2	6
Total II	775		90.96	34.81	502	273
Total I & II	852			38.22	543	309
III. Pulmonary embolism	104		10.88	04.67	56	48
Total I & II & III	956			42.88	599	357
*IIA2 & IIB & IIF	354	45.68	41.55	15.84	252	102

and oldest female 75 years. The greatest number of deaths occurred in the fourth, fifth, and sixth decades. Of course, this series of cases was rather small but it was all that could be found in this study.

Bacterial Heart Disease: This group contained only 8 cases. From Table 1 and Table 3 we can easily discern that this series of autopsies contained a total of 12 cases, 8 of which died of bacterial heart disease; 7 deaths were from subacute and 1 from acute bacterial endocarditis. The youngest male was 36 years old; the oldest male 73. There were no females among the deaths, which comprised 18.18 per cent of the group; 0.82 per cent of the cardiac groups; and 0.36 per cent of all deaths. Four cases had significant findings but died of other causes.

Syphilitic Heart Disease: Cases with luetic aortitis in which death resulted comprised 6 deaths; other syphilitic pathology in the heart and/or circulatory system made up the 5 additional cases with pathology only, as seen in Table 4. The 6 deaths were composed of 3 male

TABLE 2
GROUP I. INFECTIOUS—A. RHEUMATIC

	44 Cases with Significant Findings			20 Cases died of Rheum. Heart Dis.		
Age	Male	Female	Total	Male	Female	Total
0 - 10	1	2	3	1	2	3
11 - 20		1	1		1	1
21 - 30		2	2		1	1
31 - 40	2	2	4	2	1	3
41 - 50	4	3	7	3		3
51 - 60	3	5	8	1	3	4
61 - 70	4	4	8	3	1	4
71 - 80	7	4	11		1	1
Totals	21	23	44	10	10	20
Youngest yrs	7	7		7	7	yrs
Oldest yrs	80	79		80	75	yrs

44 cases: 20 died of rheumatic heart disease.
24 showed significant findings at autopsy but died of other causes.

TABLE 3
GROUP I. INFECTIOUS—B. BACTERIAL

	12 cases with Significant Findings			8 cases died of Bact.Heart Dis.		
Age	Male	Female	Total	Male	Female	Total
31 - 40	1		1	1		1
41 - 50	2		2	1		1
51 - 60	3		3	3		3
61 - 70	2		2	2		2
71 - 80	1	1	2	1		1
81 - 90	1	1	2			
Totals	10	2	12	8	0	8
Youngest yrs	36	77		36	0	yrs
Oldest yrs	81	83		73	0	yrs

TABLE 4
GROUP I. INFECTIOUS—C. SYPHILITIC HEART DISEASE

	11 cases of Significance			6 deaths of Syphilitic Hrt. Dis.		
Age	Male	Female	Total	Male	Female	Total
31 - 40		2	2		2	2
41 - 50	1	1	2	1		1
51 - 60	4	1	5	2	1	3
61 - 70	2		2			
Totals	7	4	11	3	3	6
Youngest yrs	46	38		46	38	yrs
Oldest yrs	64	58		59	58	yrs

and 3 female. Of the "pathology only" 5 cases, all exhibited findings of luetic aortitis; 3 also had luetic aneurysm of the aorta; one had ectasia of the aorta. Those who died presented the following syphilitic stigmata: luetic aortic valvulitis with luetic aneurysm of the ascending aorta, aortic regurgitation and heart failure; syphilitic aortitis with rupture of luetic aneurysm of the aorta into the esophagus; clinical lues with embolic phenomena of the lungs, spleen, etc., and cardiac standstill from sudden arrhythmia and shock; luetic aortitis, aortic regurgitation and aortic insufficiency; luetic thoracic aneurysm of the aorta with rupture into the esophagus and left lower bronchus. This low relative incidence of death from syphilitic heart disease in all probability stems from the fact that these are figures of white cases only.

Myocarditis: Again referring to Table 1, there were 10 deaths in this group, representing 22.74 per cent of the group deaths, 1.24 per cent of total cardiac cases, and 0.45 per cent of all deaths. There were only 3 males and 7 females, with their distribution in age groups as seen in Table 5. The youngest case was a 4 month male and the oldest a 79 year female. One 2½ year female died of diphtheritic myocarditis; one 42 year female had Feidler's myocarditis; one 45 year female had postpneumonic myocarditis, with myocardial and renal insufficiency. One 6 year female had mural thrombosis of the right auricular appendage, the heart was enlarged, and there was evidence of questionable rheumatic endocarditis although no Aschoff bodies were found. The 4 month male showed a toxic myocarditis one week after an acute upper respiratory infection. One 28 year female had a postabortional myocarditis, plus renal failure and uremic pericarditis from *Clostridium welchii* infection. One 35 year female had postsurgical congestive failure and toxic myocarditis with a general toxemia. A 79 year female developed toxemia and heart failure on the operating table while undergoing gallbladder surgery, from a generalized, overwhelming toxemia. One 40 year male developed myocarditis with septic emboli causing coronary occlusion. This series was again small; it made up 22.74 per cent of the group, 1.24 per cent of the cardiac groups, and 0.45 per cent of all deaths.

TABLE 5
GROUP I. INFECTIOUS—D. MYOCARDITIS—
10 DEATHS

Age	Male	Female	Total
0 - 6 mo	1		1
2 - 3 yr		1	1
4 - 6 yr		1	1
21 - 30 yr		1	1
31 - 40		1	1
41 - 50	1	2	3
51 - 60	1		1
61 - 70			
71 - 80		1	1
Totals	3	7	10
Youngest yrs	4 mo	2½ yr	
Oldest yrs	55	79	

II. NONINFECTIOUS HEART DISEASE

These made up 765 cases, comprising 94.56 per cent of cardiac deaths and 34 per cent of the autopsies. This group was composed of hypertensive heart disease, coronary sclerosis without hypertension, pulmonary hypertensive disease, congenital heart disease, and heart disease associated with renal disease.

Hypertensive Heart Disease: In this group the heart weight was adopted as being over 400 grams for the males and over 350 grams for females.[2c] High blood pressure and its complications are included in this category, as are several cases of cerebral complications (See Table 8) which clinically resembled cerebrovascular accidents, with or without clinical hypertension, these latter being separately discussed further along in this paper. Also included are deaths from coronary sclerosis and thrombosis, cerebral hemorrhage and thrombosis, encephalomalacia, uremia, and dissecting along with other types of aneurysm of the aorta. (Table 1). There were 499 cases in this group, comprising 65.31 per cent of Group II, 61.76 per cent of the cardiac groups, and 22.39 per cent of all deaths. Males accounted for 315 cases and females 184 cases, a ratio of 1.7:1.

Myocardial Insufficiency: Table 6 shows the 87 cases found in this category; the data are self-explanatory. Of interest are the case of acromegaly in a male, and one case, a colored female aged 50 years, included in this group who died in the clinic.

TABLE 6
GROUP II. NONINFECTIOUS—A. HYPERTENSIVE PRIMARY—1. MYOCARDIAL INSUFFICIENCY—87 DEATHS

Age	Male	Female	Total
31 - 40	1	1	2
41 - 50	6	3*	9
51 - 60	17	7	24
61 - 70	18	9	27
71 - 80	8	12	20
81 - 90	1	4	5
Totals	51	36	87
Youngest yrs	39	31	yrs
Oldest yrs	86	88	yrs

* 1 colored female in this group, aged 50, died in the clinic.

Coronary Sclerosis: Table 7 describes the 192 cases, 134 male and 59 female (2.7:1) in this category. The greatest majority occurred in the fifth, sixth, and seventh decades of life. The youngest male death was 36 years; the youngest female 34 years. The oldest male and female lived to the respective ripe old ages of 91 and 88 years.

Cerebral Complications: 122 cases who died are described in part A of Table 8; the 10 cases of congenital or other cerebral aneurysms included in this group are delineated in part B of the same table. Altogether, there were 70 males and 52 females (1.35:1); there were 5 males and 5 females in the subgroup. Again, the greatest incidence of death occurred in the span between the fifth and seventh decades.

Renal Insufficiency: In Table 9 are depicted the deaths from this cause. There were 42 male and 36 female deaths. The youngest male was 3½ years; the youngest female 2 years; the oldest male and female were 75 and 88 years, respectively. The deaths occurred mostly between the second and sixth decades.

Dissecting Aneurysm of Aorta: The study disclosed 26 cases with dissecting or other aneurysm of the aorta, the deaths being divided into 18 males and 2 females,

TABLE 7
GROUP II. NONINFECTIOUS—A. HYPERTENSIVE PRIMARY—2. CORONARY SCLEROSIS—192 DEATHS

Age	Male	Female	Total
30 - 40	2	1	3
41 - 50	16	3	19
51 - 60	39	9	48
61 - 70	35	19	54
71 - 80	33	19	52
81 - 90	4	6	10
91 - 100	1		1
Totals*	130	57	187
	4*	1*	5*
	134	58	192
Youngest age	36	34	yrs
Oldest age	91	88	yrs

* 4 males and 1 female ages not given, but estimated at autopsy.

TABLE 8
GROUP II. NONINFECTIOUS—A. HYPERTENSIVE PRIMARY—3. CEREBRAL COMPLICATIONS—122 DEATHS

A. All 122 cases				B. Congenital/Other Cerebral Aneurysms —(10 cases included)		
Age	Male	Female	Total	Male	Female	Total
21 - 30	3	1	4	1	2	3
31 - 40	3	2	5	1		1
41 - 50	12	3	15	2	1	3
51 - 60	15	9	24		2	2
61 - 70	16	13	29	1*		1
71 - 80	16	16	32			
81 - 90	3	7	10			
91 - 100	2	1	3			
Totals	70	52	122†	5	5	10
Youngest yrs	24	24		24	24	yrs
Oldest yrs	93	91		62	53	yrs

* 62 year white male died of ruptured saccular dilatation/aneurysm of cerebral artery—not hypertensive.
† 1 case each male and female, no age given; age estimated at postmortem.

TABLE 9
GROUP II. NONINFECTIOUS—A. HYPERTENSIVE PRIMARY
4. RENAL INSUFFICIENCY—78 DEATHS

Age	Male	Female	Total
0 - 10	3	3	6
11 - 20	2		2
21 - 30	5	3	8
31 - 40	8	5	13
41 - 50	8	2	10
51 - 60	7	9	16
61 - 70	5	7	12
71 - 80	4	4	8
81 - 90		3	3
Totals	42	36	78
Youngest	3½	2	yrs
Oldest	75	88	yrs

a total of 20 and a ratio of 9:1 (Table 10). The 6 cases who died of other causes but showed the aneurysms are also tabulated. Interesting is the recorded fact that only 4 cases were due to lues, all were males. Also, a 71 year old male who died of a large dissecting aneurysm of the thoracic aorta had positive serology and luetic findings, together with generalized arteriosclerosis; he was diagnosed by the pathologist as having an arteriosclerotic type of aneurysm.

Coronary Sclerosis without Hypertension: These cases accounted for 154 deaths; 116 were males and 38 females, a significant difference of 3:1. In this group, there was no history of hypertension and the hearts weighed less than 400 grams for the male and 350 grams for the female. This group made up 20.15 per cent of Group II, 19.06 per cent of the entire cardiac group, and 6.91 per cent of the autopsies. Pathologically, these cases presented myocardial infarcts with or without coronary occlusion; others showed partial to total coronary artery occlusion and no myocardial infarction. However, many of these hearts had suffered repeated occlusions and/or myocardial infarcts, and were very fibrotic (Table 11). The

TABLE 11
GROUP II. NONINFECTIOUS
B. CORONARY SCLEROSIS—154 DEATHS

Age	Male	Female	Total
31 - 40	3	1	4
41 - 50	16		16
51 - 60	43	13	56
61 - 70	26	12	38
71 - 80	23	11	34
81 - 90	4	1	5
91 - 100	1		1
Totals	116	38	154
Youngest	37	33	yrs
Oldest	92	82	yrs

greatest incidences were in the fifth, sixth and seventh decades. The oldest male was 92 years and the female 82 years; the youngest male and female were 37 and 33 years, respectively.

Pulmonary Hypertension: There were only 20 cases, 19 dying of this condition, 1 of other causes. These all had in common findings in the lungs which would cause pulmonary hypertension, hypertrophy of the right cardiac ventricle, no cardiac valvular deformities, and death resulting from cardiac failure (cor pulmonale). There were 2 acute cases, both female; one 45 year old female developed right heart failure and died on the second postoperative day; the other was a 55 year old female with extensive pulmonary

TABLE 10
GROUP II. NONINFECTIOUS—A. HYPERTENSIVE PRIMARY
5. DISSECTING/OTHER ANEURYSM OF AORTA—26 CASES/20 DEATHS

	All Cases — 26			Died — 20			Pathology at Autopsy		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
41 - 50	2		2	2		2			
51 - 60	2	0	2	1		1	1		1
61 - 70	11	1	12	10	1	11	1		1
71 - 80	8	2	10	5	1	6	3	1	4
Totals	*23	3	26	*18	2	20	5	1	6

* 1 colored male died suddenly in the clinic.
13 ruptured/dissecting aneurysms of thoracic/abdominal aorta
7 ruptured saccular aneurysms of thoracic/abdominal aorta
—
20 deaths

fibrosis who went into acute right heart failure and died.

There were 11 males and 8 females who died (Table 12). Table 1 gives the relative

TABLE 12
GROUP II. NONINFECTIOUS
C. PULMONARY HYPERTENSION (COR PULMONALE)
20 CASES—19 DEATHS

Age	Male	Female	Total
41 - 50		1	1
51 - 60	3	4	7
61 - 70	*5	1	6
71 - 80	2	2	4
81 - 90	2		2
Totals	12	8	20
Died	11	8	19
Youngest	51	45	yrs
Oldest	88	80	yrs

*1 case, 68 year old male, died of other causes.
Acute: 2 females, ages 45 and 55 years.
Chronic: All other cases tabulated.

percentages. Pulmonary tuberculosis, pulmonary fibrosis and emphysema were the etiological factors in these deaths. There were no deaths following pulmonary emboli or pulmonary artery arteriosclerosis in this group.

Congenital Heart Disease: In this category were 57 cases, 54 deaths. No prematures were included, nor were newborns with the findings of patent foramen ovale and patent ductus arteriosus only, as this combination is often a normal physical finding, especially in premature infants. As in Table 1 and Table 13, there were 31

TABLE 13
GROUP II. NONINFECTIOUS
D. CONGENITAL HEART DISEASE
57 CASES—54 DEATHS

Age at death	Male	Female	Total
Newborn - 1 day	3	4	7
Over 1 day - 1 mo	10	5	15
Over 1 mo - 6 mo	9	9	18
Over 6 mo - 1 yr	6	1	7
Over 1 yr - 5 yr		4	4
Over 5 yr - 10 yr			
11 - 20 yr			
21 - 30	1		1
31 - 40			
41 - 50	1		1
51 - 60	1		1
Totals	31	23	54
Youngest	4 hr	6 hr	
Oldest	52yr	4½ yr	

3 males, aged less than 1 day, 50 years, 75 years, died of other causes but had significant congenital heart disease findings.

males and 23 females who died. Not included were 3 males, aged less than 1 day, 50 years, and 75 years respectively, who died of other causes while exhibiting findings of congenital heart disease. This group made up 6.56 per cent of cardiac deaths and 2.38 per cent of all deaths. The oldest male and female were 52 years and 4½ years respectively. The youngest male and female were 4 and 6 hours. The types of heart defects were by far found in combinations and are tabulated in order of frequency as seen in Table 14.

TABLE 14
CONGENITAL HEART DISEASE—
INCIDENCE OF DEFECTS FOUND

(a)	Inter-ventricular septal defects	21 times
(b)	Hyptertrophy of heart, auricles, and ventricles	20 "
(c)	Patent ductus arteriosus	18 "
(d)	Deformity, defect of great vessels, and anomalies	17 "
(e)	Patent foramen ovale	15 "
(f)	Defects of valves or cusps	15 "
(g)	Inter-auricular septal defects	9 "
(h)	Transposition of great vessels	9 "
(i)	Tetralogy of Fallot	6 "
(j)	Coarctation of the aorta	5 "
(k)	Two or three-chambered heart	4 "
(l)	Truncus arteriosus	3 "
(m)	Endocardial fibroelastosis	3 "
(n)	Lutembacher's syndrome	2 "
(o)	Eisenmenger's complex	2 "
(p)	Patent ductus venosus	1 "
(q)	Dextrocardia alone	1 "
(r)	Fibromyxoma of auricle	1 "

Miscellaneous: As seen by Table 1, there were 18 males and 13 females* in this aggregation, all presenting difficulty in placement in any of the other groups or components. In the order of frequency, Table 15 lists the cause of death in these cases.

Hypertensive and Arteriosclerotic: As can be seen by Table 1, these comprised only 8 cases. They were the only true combinations of such types of heart disease in the entire autopsy series, and the deaths could not be attributed to any but the combination of causes, pathologically demonstrated. As seen by Table 16, there

* Actually there were a total of 33 cases in this group, found on correction of the tabulations; 20 males and 12 females.

TABLE 15
MISCELLANEOUS—33 CASES—
CAUSE OF DEATH FITTING NO PREVIOUS CLASSIFICATION

(a)	Cardiac arrest—5 surgical; 2 medical	7 cases
(b)	Thrombosis of abdominal aorta—2 post-surgical; 2 from peripheral venous thrombosis	4 cases
(c)	Congestive failure, hypertrophy and dilatation of the heart, cause undetermined	4 cases
(d)	Multiple emboli and infarcts of the lungs, kidneys, spleen, and other viscera	4 cases
(e)	Brain hemorrhage from thrombocytopenic purpura	2 cases
(f)	Brain hemorrhage from leukemia	1 case
(g)	Congestive heart failure from mural thrombi, metastatic carcinomatous nodules in the heart	1 case
(h)	Same as "g" above, but with metastatic Kaposi's sarcoma	1 case
(i)	Chronic heart failure from arteriovenous anastomosis of the wrist, congenital	1 case
(j)	Hypertrophied heart from unilateral renal disease	1 case
(k)	Congestive heart disease from beriberi associated with chronic alcoholism	1 case
(l)	Combined cerebral infarcts and congestive heart failure from severe amebiasis	1 case
(m)	Eroded arch of aorta	1 case
(n)	Aortic calcified stenosis with coronary sclerosis	1 case
(o)	Massive abdominal aortic aneurysm; uremia from septicemia	1 case
(p)	Air embolus of heart, lungs, brain from spinal puncture	1 case
(q)	Rupture of aorta into mediastinum	1 case
		33 cases

TABLE 16
GROUP II. NONINFECTIOUS
F. HYPERTENSIVE AND ARTERIOSCLEROTIC
8 CASES, ALL DEATHS; DIAGNOSED BY PATHOLOGIST AT AUTOPSY IN THIS DOUBLE CATEGORY, AS EXHIBITING FINDINGS CHARACTERISTIC OF BOTH GROUPINGS

Age	Male	Female	Total
51 - 60		2	2
61 - 70		2	2
71 - 80	2	1	3
81 - 90		1	1
Totals	2	6	8

were 2 males and 6 females.

GROUP III. PULMONARY EMBOLUS AND INFARCTION

These cases numbered 104 total and 68 deaths. The series would have been considerably larger in total cases, including deaths and pathological findings only (where patients died of other causes); the reason was simply that small lung embolic phenomena were purposely omitted from this report. Only those cases presenting definite, unmistakable and important findings or which died from this condition were included. Looking at Table 1 again, and then at Table 17, we can see that there were in all 56 males and 48 females; in the 68 deaths, 28 were males and 40 females, a significant difference of 7:10.

When divided medically and surgically, the overall group contained 63 cases (37 males and 26 females) in the former category and 41 cases (19 males and 22 females) in the latter. Divided similarly, the death group were comprised of 36 medical deaths (16 male and 20 female)

TABLE 17
GROUP III. PULMONARY EMBOLUS/INFARCTION
104 CASES—68 DEATHS

	Entire Group—104 Cases									Cause of Death—68 cases					
	By Sex			Medical 63			Surgical 41			Medical 36			Surgical 32		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Newborn - 1 wk	1		1	1		1				1		1			
5 - 6 yr		1	1		1	1				0	1	1			
21 - 30 yr		2	2		2	2					1	1			
31 - 40	1	3	4		2	2	1	1	2		1	1		1	1
41 - 50	2	6	8	1	1	2	1	5	6	1	1	2	1	4	5
51 - 60	13	10	23	9	3	12	4	7	11	2	2	4	2	6	8
61 - 70	30	17	47	22	9	31	8	8	16	10	9	19	4	8	12
71 - 80	8	7	15	3	6	9	5		5	1	4	5	5		5
81 - 90	1	1	2	1	1	2				1	1	2			
91 - 100		1	1		1	1		1	1					1	1
Totals	56	48	104	37	26	63	19	22	41	16	20	36	12	20	32

and 32 surgical (12 male and 20 female) deaths. The greatest numbers of cases in all groups occurred in the fifth and sixth decades of life.

The occurrence of pulmonary embolic phenomena seems to have been rarely, if ever, diagnosed ante mortem. This same observation was made in papers written by several observers, all of whom admit and emphasize the extreme difficulty of diagnosis, especially when in the presence or co-existence of other complications.[4a, b, c] The clinical picture did not seem to be in accord with the older teachings, such as the patient "grasping the chest and yelling in anguish", then gasping and expiring. Instead, concurring with other investigators,[4b] the picture was so varied and at times so practically symptomless as to defy diagnosis. Actually, if not found to be sudden and immediate death upon the operating table or shortly thereafter, or after a period of several weeks or months of confinement in bed for illness or a fractured bone, the signs ran more towards these examples: A 50 year old female sitting in bed suddenly collapsed and expired eight days after perineorraphy, showing at autopsy massive bilateral pulmonary embolus from phlebothrombosis of the right femoral vein; immediate death on the operating table at any age; pulmonary infarctions from venous thromboses in a 55 year old female while lying in bed; sudden death in bed in a 57 year old female eight days after laparotomy; very quiet death from numerous pulmonary emboli in a 63 year old male with progressive peripheral thrombosis; sudden drop of blood pressure, weak pulse, vomiting, and cyanosis in a 51 year old male three days after surgery, who also had clinical lues and diabetes. An 86 year old male suffered massive pulmonary embolism and infarction complicated by a fairly recent myocardial infarction and arteriosclerotic cardio-renal disease with few complaints; a 67 year male had massive pulmonary embolism with some chest pain, had an old myocardial infarction and a normal EKG on history and physical examination, complained of newly felt chest pressure also; a 6 year old female developed massive pulmonary embolism with acute cor pulmonale and died with little complaint.

In summation, the patients died very suddenly or else had comparatively little complaints for the clinician to investigate, whether there were other complications present or not. In this series, operations, bed rest for fractures in elderly patients, thrombo-embolic phenomena in other organs, confining diseases, development of "cough or cold" while in bed after surgery (duration of several hours to two weeks, averaging five to eleven days postoperatively), and sudden death in the absence of heart and lung disease or chest complaints should make one very suspicious of pulmonary embolic phenomena. Of necessity, the usual suspicions of cardiac or allied developments should not be superseded or neglected. Of the cases tabulated in this study, only four times was there a notation on a patient's chart where pulmonary embolism was suspected while the patient was still alive; once there was a positive diagnosis of this condition four hours after surgery, several hours before death.

The roentgenologists cannot make a diagnosis of pulmonary embolism per se, so they maintain; a suspected "pneumonia spot" seems to be as close as they can arrive. Perhaps a suspicious, alert attitude of the physician, together with a close co-operation between the surgeon, the cardiologist, the attending physician, and the roentgenologist and the use of anticoagulants and antibiotics by such a team as recommended by some writers[4a, b] may help the patient, if at all possible. Nevertheless, here we are confronted by a medical challenge which is not to be disregarded; the existence of many more instances of this phenomenon than heretofore suspected must be seriously taken account of. Pulmonary embolism and infarction is indeed something to be reckoned with both from medical and surgical standpoints.

ADDITIONAL DATA FROM THIS STUDY

There are some highly informative and

enlightening as well as interesting data worthy of separate discussion which will be additionally taken up now.

1. *Diabetes Mellitus*: The number of cases with this entity were not tabulated; they were exceedingly highly represented. Nearly every type of cause of death in this study had a fairly large proportion of cases complicated by diabetes mellitus. Perhaps the large number of Jewish patients had relationship to the findings. In any event, the figures were glaring.

2. *Syphilis*: This disease was conspicuous by its relative scarcity. Again, the fact that this hospital admits only white patients is probably of direct bearing.

3. *Cardiac Aneurysm*: Although not a cause of death, there were 7 cases in all. Six of the 7 occurred in the group of arteriosclerotic hearts; 5 of these followed myocardial infarction or infarctions, and were present in varying sizes in the left ventricular wall (4 cases) and in the tip of the left ventricle (1 case). The remaining 2 cases were due to hypertension primary deaths and consisted of interventricular septal aneurysms into the right ventricles, from hypertensive hypertrophy and dilatation of the left ventricles with their increased left intraventricular pressures (Burnside syndrome). One male lived to be 76 and a female to 73 years; these had several episodes of repeated myocardial infarctions, finally dying of the same recurrence.

4. *Cardiac Arrest*: These were included in the "Miscellaneous" category but are described here. There were 7 cases in all, 5 dying on the operating table in spite of all resuscitative efforts; the other 2 were medical. Of these, one resulted from auricular fibrillation and sudden standstill of the heart from undetermined cause in a 34 year old female; the second developed cardiac arrhythmia and standstill from clinical lues and multiple embolism of the lungs, spleen, and other viscera, and was a 38 year old female. The youngest case was a 5 month male undergoing surgery for persistent hypertrophy of the thymus, who died postoperatively.

5. *Cardiac Rupture*: These 21 cases present another diagnostic and therapeutic problem. Seven cases were found among the arteriosclerotic myocardial infarctions and 14 cases among the hypertensive coronary group following infarctions. They accounted for 0.94 per cent of all deaths, 2.6 per cent of cardiac deaths, and 6.0 per cent of the hypertensive/arteriosclerotic/coronary thrombosis / myocardial infarction group (the last line of Table 1). Seven occurred in the five year period, 1945-1950; 14 after 1950.

Anticoagulants were used in only 5 of these cases. The electrocardiograms revealed only tracings compatible with myocardial infarctions. None of these was diagnosed ante mortem. Of the majority, they lived from a few minutes to six to eight hours after admission, although one male survived eleven days and died suddenly, with pathologic evidence of a myocardial tear which was several days old. Three cases arrived DOA in the ambulance; 2 died in the admitting room.[3a, b, c] One finding common to all cases who survived long enough to be admitted to their rooms was a definite downhill course without any response to antishock, oxygen, etc. therapy. These 21 cases present another diagnostic and therapeutic challenge to medicine.

6. There were 4 cases of cryptococcosis (torulosis) among the 2229 autopsies. These exhibited symptoms and signs of a meningitis, which did not respond to any treatment. They were proven by smear and culture. None were diagnosed until they reached necropsy.

COMPARISON WITH OTHER AUTOPSY STUDIES

By examining Table 18, comparison with three other autopsy series[2a, b, c] all much larger than the present study, can be easily evaluated. Clawson, Holoubek, and Wafer all show a lower incidence of combined hypertensive and arteriosclerotic heart disease, and higher incidences of rheumatic, bacterial, and syphilitic heart disease by rather significant differences. Holoubek presents results of his work from data of records from Charity Hospital at New Orleans with its high colored admissions. His study reveals a much

TABLE 18
COMPARISON WITH OTHER AUTOPSY SERIES

Etiologic Types of Heart Disease	Present Series 2,229 autopsies 809 Cardiac deaths 1945 thru 8/31/55 New Orleans Touro Infirmary	Wafer 13,015 autopsies 3,607 Cardiac deaths 1941 thru 1947 Los Angeles	Holoubek 8,313 autopsies 1,045 Cardiac deaths 1935 thru 1940 New Orleans	Clawson 30,265 autopsies 4,678 Cardiac deaths 1910 thru 1938 Minneapolis
1. Hypertensive	61.76%	70.8%	40.5%	55.5%
2. Arteriosclerotic	21.20%	4.3%	20.7%	6.2%
3. Combined 1 & 2	82.96%	75.1%	61.2%	61.7%
4. Rheumatic	2.47%	8.8%	11.1%	18.6%
5. Bacterial	0.82%	5.4%	2.1%	11.0%
6. Syphilitic	0.74%	3.1%	18.2%	7.0%
7. Congenital	6.56%	1.9%	2.2%	———

lower hypertensive and arteriosclerotic heart disease incidence, but much higher (24.73 times) syphilitic heart disease. Wafer and Houloubek are much lower in their congenital heart disease categories. Clawson's series is much higher in the rheumatic heart disease grouping probably due to the higher prevalence of rheumatic fever in the Minnesota and northern U.S.A. sector, and/or due to the lack of sulfonamides and other antibiotic drugs which became available so much later after his studies were made.

SUMMARY

A total of 2229 autopsies performed on 3860 deaths (55.15 per cent) at the Touro Infirmary were studied and the relative incidence of the different types of heart disease was determined and reported. The age and sex incidence of these several types was also tabulated.

Pulmonary embolic phenomena were categoried and tabulated as to age, sex, medical and surgical deaths, and pathological findings cases. The problems of diagnosis and possible treatment for a rather highly important but undiagnosed group of cases were emphasized and recognized as a medical challenge.

Interesting and important cases such as hearts ruptured after myocardial infarction, aneurysm of the heart wall, and cardiac arrest, etc. were described and discussed briefly. The medical challenge presented by 21 cases of death from ante mortem undiagnosed ruptured hearts was recognized and emphasized.

It is sincerely hoped that medical science will evolve suitable and successful replies to the medical challenges which have been presented. It is felt that the figures and tabulations listed in this study might have some medical significance. It remains for studies of this type in the foreseeable future to demonstrate gratifying improvements and decreases, in the present dearth, of heart disease and related killers.

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ACQUIRED AFIBRINOGENEMIA WITH COUVELAIRE UTERUS FOLLOWING CORTISONE THERAPY AND PITOCIN INDUCTION FOR AN Rh ISOSENSITIZATION

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Acquired afibrinogenemia in pregnancy has been described in the following pathologic states: abruptio placenta,[5] amniotic fluid embolism,[7] prolonged death of a fetus in utero with[9] or without Rh isosensitization,[2] fulminating eclampsia,[1] abortion,[2] and retained placenta.[3]

This case is of particular interest in that the patient had an Rh incompatibility and was placed on cortisone therapy as a prophylactic measure. An elective pitocin induction was begun and the fetal heart tones disappeared when she developed evidence of toxemia and abruptio placenta. After vaginal delivery of an erythroblastotic stillborn, an uncontrollable postpartal hemorrhage resulted. A postdelivery hysterectomy was performed and a Couvelaire uterus was noted. An acquired hemorrhagic diathesis due to afibrinogenemia was encountered.

CASE HISTORY

Present Illness: The patient, a 28 year old white female, was admitted at approximately 37½ weeks gestation for an elective induction of labor, the reason being that she had had two living children with erythroblastosis fetalis and two erythroblastotic stillborn infants.

Past Obstetrical History: Briefly, she had a normal delivery with the first pregnancy. The second pregnancy terminated in the birth of a viable female infant which developed jaundice and anemia. Multiple blood transfusions were given. The third baby was a stillborn. The mother was placed on 100 mg of cortisone daily at the 32nd week of the fourth pregnancy. She developed a psychosis with a marked disturbance in electrolyte balance during the 37th week of gestation. The patient received a pitocin induction which resulted in the birth of a viable female infant. The Coombs' test was positive and an exchange transfusion was successfully carried out. With the fifth pregnancy, she was advised to take cortisone therapy beginning at the 28th week of gestation but refused because of the sequelae that had occurred previously. This pregnancy terminated in an erythroblastotic stillborn with hydrops fetalis.

Prenatal Course: Patient had blocking antibodies, 1 to 64, and negative regular antibodies during the entire pregnancy. She was placed on cortisone 75 mg. daily at 28 weeks' gestation. This was increased to 100 mg. daily at 30 weeks. She also received weekly injections of progesterone 50 mg. She was placed on multivitamins as well as vitamin E orally. The weight gain was normal and there was no evidence of toxemia. Blood pressure and urine analyses were normal.

Course in Hospital: Patient entered the hospital May 5, 1954. An infusion of 1000 cc. 5 per cent dextrose in distilled water with 10 minims of pitocin was started at the rate of 15 to 18 gtts. per minute. At 12 noon she was checked and the cervix was found to be 2 cm. dilated and 10 to 15 per cent effaced. The membranes had been previously stripped but were not ruptured because of a floating head. At about 3 P.M. she developed a boardlike uterus. At this time the fetal heart tones could not be elicited. The blood pressure was 120/80. She was typed and matched. The pitocin was discontinued. The uterus was marked to see if any enlargement took place. Subsequently, she was found to be 4 cm. dilated and the membrances were ruptured artificially. Prior to this about 75 to 100 cc. of bright red blood had been lost. The blood pressure was 138/90 and the pulse was 72. Heart tones were still absent. The patient received intramusular injections of pitocin of one-half a minim at intervals of fifteen to thirty minutes from 7:00 P.M. until 11:00 P.M. During this time the blood pressure rose from 120/90 to 150/90. The pulse was regular.

She received 500 cc. of compatible O negative blood slowly. The transfusion was running at the time of delivery at 11:00 P.M. She was delivered of a stillborn infant which was not jaundiced. The amniotic fluid was blood tinged and icteric. The baby had a large liver and spleen filling its entire abdomen. Following this the placenta was delivered uneventfully. It was a very large hydropic placenta with a large central blood clot. At this time the patient began bleeding excessively. She lost about 1000 cc. of blood in a matter of a few minutes. She was not bleeding from the site of a small episiotomy nor from the cervix. The uterus was slightly enlarged and boggy, and the blood was literally pouring out. She received two bottles of Dextran and 1000 cc. of plasma. The patient continued to ooze through a uterine pack and was in a state of shock. She received blood in one arm and four ampoules of Levophed by means of a cut down, and also, 20 cc. of calcium gluconate, large amounts of vitamin K and 40 cc. of adrenal cortical extract. The blood absolutely would not clot. Fresh blood, 5000 cc. was rapidly administered. Fibrinogen was being flown by airplane from New Orleans. At 5:00 A.M. the watery sanguinous fluid had increased. Her general condition was worse. Under

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practically no anesthesia at all a laparotomy was performed. A classical Couvelaire uterus was encountered with hemorrhage out into the broad ligaments. A rapid subtotal hysterectomy was performed. Four grams of fibrinogen were administered. After completion of surgery, she continued to ooze through a vaginal pack. Presumably the bleeding was from the cervix and vaginal vault. A balloon was inserted into the rectum and slight traction applied. By 10:00 A.M. she stopped bleeding and was returned to her room at 2:00 P.M.

Course in Hospital After Surgery: Levophed was discontinued the following day. The balloon in the rectum was removed as was the vaginal pack. Oxygen was discontinued on the second day and suction removed the third day. Fluids were not forced and the urinary output was excellent. She was not morbid. On the seventh day she started passing feces per vagina. She was discharged on the tenth postoperative day.

Laboratory Data: May 6, 1954 R.B.C. 4.45 million W.B.C. 15,000 Differential normal. Urine negative. May 6, 1954, Fibrinogen 740 mg. May 7, 1954, Fibrinogen 240 mg. Bleeding, clotting and prothrombin time normal. Platelet count 200,000. R.B.C. 5 million. Hematocrit 48.

Follow-Up: Aug. 1, 1954, B.M.R. -5, 17 ketosteroids normal. P.B.I. 6 gamma. Repair of rectovaginal fistulae performed. Jan. 1, 1955, fistulae repair successful. B.P. 100/60. Patient shows no evidence of Sheehan's syndrome or pituitary necrosis.

DISCUSSION

1. *Cortisone Therapy.*—To my knowledge this is the only reported case of a pregnant patient developing an abruptio placenta, afibrinogenemia, and a Couvelaire uterus while on this therapy. Whether the cortisone was the modus operandi in producing the toxemia while receiving the pitocin induction is open to question. She showed evidence of poor wound healing which may be ascribable to this medication.

The past obstetrical history is significant and warrants a brief discussion. The first pregnancy and delivery were uneventful. Her second baby became icteric several days postdelivery and received several transfusions. The third pregnancy terminated in the delivery of a stillborn infant. An autopsy revealed typical findings of erythroblastosis. The patient was placed on cortisone 100 mg. daily beginning the 32nd week of the fourth pregnancy. She developed a psychosis and a marked disturbance in her electrolyte balance during the 37th week. She received a pitocin induction which "took" and she was delivered of a viable infant. The Coombs' test was positive. An exchange transfusion was done and the infant survived with no sequelae. Cortisone was suggested about the 30th week of the fifth pregnancy but was refused because of the previous difficulties encountered. The heart tones disappeared while she was in labor and a hydropic erythroblastotic infant was delivered. The patient agreed to take cortisone with her sixth pregnancy which terminated in a toxic abruptio placenta and a stillborn infant. An autopsy revealed erythroblastosis fetalis. The ramifications of this sordid obstetrical history could have been far reaching in that she lost a baby due to an Rh isosensitization, had a live baby while on cortisone and then lost another. Had this last infant survived I believe it would have been significant.

My experience with cortisone not only in this case but in others has been discouraging when given for Rh isosensitizations. The viable infants that I have obtained in obstetrical patients who had lost previous babies due to erythroblastosis all received exchange transfusions and had clinical evidence of erythroblastosis.

2. *Pitocin Induction*: Nowadays pitocin inductions are considered to be rather innocuous. Yet this patient had an initial blood pressure of 100/60, negative urine analysis and good fetal heart tone. She developed a tetanic uterus with severe abdominal pain, elevation of blood pressure, cessation of fetal heart tones and vaginal bleeding. In other words, she developed typical signs and symptoms of a toxic abruptio while receiving the intravenous pitocin drip.

Cases of afibrinogenemia due to amniotic fluid embolism have been described where tumultuous labors have been a factor.[4] Pitocin could contribute abnormalities of the clotting mechanism by forcing thromboplastin out into the maternal circulation from the placental site. It would

be interesting to know how many cases of afibrinogenemia received pitocin with a hard or rapid labor.

3. *Blood Coagulation Factors.* — The mechanism of the depletion of fibrinogen apparently is as follows: Thromboplastin from the placenta or decidua escapes into the maternal circulation.[6] Thus prothrombin is converted into thrombin which converts fibrinogen to fibrin with multiple fibrin emboli produced.[8] Following this, intractable hemorrhage ensues due to a fibrinogen deficiency.

It is significant that the fibrinogen level was increased at the time of the symptoms of abruptio beginning approximately ten hours prior to delivery. Do fibrinogen levels always rise with, or herald, impending toxic abruptio with hemorrhage? Would it be possible to be forewarned of afibrinogenemia by an initial hyperfibrinogenemia?

This patient manifested evidence of a marked fibrinogen deficiency for an interval of eight hours as evidenced by failure of the venous blood to clot.

Unfortunately adequate blood studies were not made in this case. An improvement was noted when the fibrinogen was finally obtained.

4. *Plan of Management.* — In retrospect, this patient should have been sectioned when she manifested evidence of a toxic abruptio because it appears certain that the Couvelaire uterus was also present. However, she was a multipara with a dead baby and was 4 cm. dilated and was not in shock so the membranes were ruptured and she was given I.M. pitocin. Should the hysterectomy have been done after the cervix was inspected and the uterus packed unsuccessfully? Fresh blood was being given to her as rapidly as possible and she was kept alive on levophed. Fibrinogen was not available and she had the obvious afibrinogenemia.

CONCLUSION

A case of acquired afibrinogenemia with an abruptio placenta, Couvelaire uterus that had been on cortisone therapy for an Rh isosensitization was presented. An elective pitocin induction was done prior to the abruptio.

Numerous intriguing factors were provoked by this case and a severe defect in the clotting mechanism was encountered.

In conclusion, all hospitals where obstetrics is practiced should have blood banks with adequate amounts of all types of blood. Levophed should be in the delivery rooms with large needles and glucose. Fibrinogen is now available and should be kept in all hospitals in adequate amounts.

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BEQUEST OF THE BODY AT DEATH

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Members of the medical profession in Louisiana are in position to aid in a situation that seriously affects medical and dental education in the State. The study of anatomy is a basic essential in education for these professions, and it can be pursued only by dissection of the human body. Although the law[1] provides that unclaimed bodies be placed at the disposal of the three Louisiana schools that offer anatomical instruction, the supply has

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been inadequate. Our schools are not alone in this, for the shortage of anatomical material is widespread over the United States and has been the subject of publicity in popular magazines[2] as well as professional journals.[3] Of the 39 states having medical and dental schools, less than a dozen provide for bequest of the body at death as an additional source of material for scientific study. Louisiana is one of these.[4] Thus far only several bequests have been received, but the experience of schools in California has shown that bequest is potentially a major source of supply. Physicians can perform a great service, in their contacts with patients and others, if they will discreetly pass on this information about a critical need and the way in which interested persons can contribute to human welfare.

An information sheet that has been prepared for distribution to inquirers is copied below (minus its headings), together with the form of bequest that has been approved by the Office of the Attorney General of Louisiana.

The Louisiana law provides that any resident of the State, of the age of 21 years or older and of sound mind, may bequeath his entire body at death or any part thereof for the purpose of advancing medical science. Persons who arrange for this disposition of their bodies have the satisfaction of knowing that the remains will be of lasting benefit in serving humanity. They have further satisfaction in relieving the survivors of the expenses attached to burial.

Bodies may be bequeathed to the Louisiana State Anatomical Board. This organization, operating under Louisiana law, is responsible for the procurement, use and final disposition of the human bodies that have been dedicated to scientific study. Such studies are carried out by three teaching institutions: Louisiana State University, School of Medicine; Loyola University of the South, School of Dentistry; Tulane University, School of Medicine. They are the member institutions composing the Board. If so desired, a body may be bequeathed specifically to any one of these institutions.

The procedure of bequest is simple. A form for this purpose will be supplied, and the form (two copies) needs only to be signed by the person and by two competent witnesses who are residents of the parish in which the bequest is made. The completed forms are to be mailed to the Secretary-Treasurer of the Board (address below), who will file one copy with the clerk of the district court. The person should make sure that those who are near him—the physician and family members—know about the bequest; they should be informed also on promptly reporting the death to the Board (to its Secretary-Treasurer or the Dean of any one of the three Schools named above). When the notice of death is received the Board will send an undertaker to secure the body.

Further information will be gladly supplied on request.

Secretary-Treasurer
Louisiana State Anatomical Board
Tulane University
New Orleans 18, Louisiana
Telephone: UNiversity 6-2741,
Extension 233 or 235

LOUISIANA STATE ANATOMICAL BOARD
New Orleans, La.

I hereby bequeath my body, after death, to the Louisiana State Anatomical Board for the purpose of advancing medical science. (If the person making this bequest desires that the study be carried out in a particular institution of the Board, the underlining of its name in the following list shall constitute a specific assignment to that institution: (1) Louisiana State University, (2) Loyola University of the South, (3) Tulane University.)

Witness *Signature*

Witness *Address*

Parish of residence

Parish in which this bequest was executed

Date

Mail (two copies) to:
Louisiana State Anatomical Board
Tulane University
New Orleans 18, Louisiana

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THE PROBLEM OF CARDIAC HANDICAPPED CHILDREN IN LOUISIANA

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Recently a greater significance attaches to the problem of heart disease in children. Since rheumatic fever and congenital heart disease account for approximately 95 per cent of heart disease in children, a handicapped child who requires long term care and supervision is often the result. Rheumatic fever continues to be the major medical cause of death up through adolescence, despite a progressive decline in incidence over the past fifty years. Congenital heart disease because of continued interest and improvement in methods of diagnosis probably has a trend to increase. Admittedly, these diseases form a relatively small part of the overall problem of heart disease, but they are of no less importance to the individual who may be afflicted; and, we now have methods of approaching the problems which they produce.

There have been no adequate surveys for the state from which the incidence of rheumatic fever or congenital heart disease can be determined, but surveys [1] conducted elsewhere indicate that approximately 1 per cent of school children (ca. 10 - 12,000 in Louisiana) are afflicted with rheumatic fever and rheumatic heart disease. Autopsy studies [2] at Charity Hospital of New Orleans suggest that the incidence of rheumatic involvement of the heart is no less in Louisiana than in other areas.

As reflected in Table 1, congenital heart disease occurs approximately one-third as commonly as clinically recognized rheumatic fever and its sequela.

SCOPE OF A PROGRAM FOR CARDIAC CHILDREN

A plan for treatment of cardiac handicapped children in Louisiana has been outlined through the cooperation of the Louisiana State Health Department and the Louisiana Heart Association. This plan emphasizes the role the practicing

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TABLE 1

AVERAGE ANNUAL ADMISSIONS RATE* (1950-55) (TWO MAJOR CHARITY HOSPITALS OF LOUISIANA)

	Rheumatic Fever †	Rheumatic Heart Disease		Congenital Heart Disease
		With activity	Without activity	
New Orleans	116	196	83	148
Shreveport	42	27	25	45

* Data necessarily included readmissions; consequently, rate of admissions is slightly greater than number of patients.

† Discharge diagnosis according to Standard Nomenclature of Diseases terminology.

physician would play in extending care to all children with, or potentially with heart disease. Two chief centers ideally located geographically, New Orleans and Shreveport, are being considered to offer highly specialized services which may be needed by the physician in the care of his patient. The plans immediately include an extension of the diagnostic, acute and convalescent needs and clinic services at Charity and the Crippled Children's Hospitals in New Orleans. A roster of resource personnel has already been partly formed and a certain amount of interest has been stimulated by the Louisiana Heart Association and State Health Department in individuals who can aid in the initiation of a more comprehensive program—for a really adequate program must go beyond the current practices.

A complete program should promote the development and integration of services and facilities for the state. A project so designed should (1) insure that children with cardiac problems receive adequate and continuing care, (2) remove the label of falsely diagnosed cases, (3) encourage the use of methods for prevention of rheumatic fever and bacterial endocarditis, (4) find other children with rheumatic fever and congenital heart disease and (5) offer educational facilities where needed.

The initiation of this program, however, requires the concerted effort not only of the Health Department, Heart Association and practicing physicians but also of the medical schools, state hospital system, nursing personnel, school system, and social, occupational and vocational rehabilitation services. Facilities for prolonged convalescent care, programs against further development and recurrences of rheumatic fever and bacterial endocarditis, and means for bacteriologic studies are integral parts of the program. Briefly summarized, an overall program requires hospital, clinic and field services. The State Health Department can offer certain facilities but these need to be supplemented, and in addition to cooperation among the various organizations, a coordinator with clearly defined responsibilities is necessary to both activate and coordinate the program on local and state levels.

NATURE AND EXTENT OF FINANCIAL SUPPORT FOR ACTIVITIES OF A CARDIAC PROGRAM

Another aspect of the problem to be considered is the financial one. Financial support for the care of cardiac children is on a restricted basis: needs are being met by strictly private or strictly charity sources, both of which fail to provide an outline of prolonged convalescence, adequate prophylaxis, or follow-up observations.

ADEQUACY OF PUBLIC AND PRIVATE FACILITIES

The services presently available are inadequate, but this inadequacy comes about largely through a lack of organization. Facilities for certain specialized aspects, such as cardiac catheterization, and particularly cardiac surgery, exist in very limited amounts but the over-all needs could be met easily through planning and cooperation since many of the facilities and services referred to above are available.

EDUCATIONAL PROGRAM

Informative programs for the general public are currently being sponsored by the Louisiana Heart Association and Health Departments through radio, television, newspapers and public forums. Probably more important are the scientific sessions on cardiac problems being presented to physicians by the medical schools and Heart Association. However, there is yet a need for extension of information to other professional groups which may be directly involved in the care of the cardiac child.

SUMMARY

The scope of a program for the care of the cardiac handicapped child necessarily entails all of the considerations discussed above. Because of the many varied problems which will be encountered in the development of the program, cooperation of professional, technical and social services is required. These services in turn need direction by an individual or a group familiar with needs of our local area. Fortunately, advances in therapy made during the past few years offer means of preventing rheumatic fever and correcting or improving certain congenital heart lesions. What we need now is interest and support to put the program into effect.

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VOMITING OF PREGNANCY

A recent report by the Council on Pharmacy and Chemistry emphasizes what is known and what is not known about this condition that affects as much as one third of pregnant women. The report points out that there is much difference of opinion as to the frequency and the importance of the condition from a therapeutic standpoint. Estimates are varied in the review made by the Council from the statement that it appeared in 80 per cent of all pregnancies to the opinion of one consultant, who said that less than 1 in a thousand obstetrical patients required hospital treatment for this condition. The opinion of a panel of four consultants experienced in this field was solicited by the Council. It was felt that the term "nausea and vomiting of pregnancy" while previously used in reference to the mild and severe forms should be restricted to the condition commonly observed during the first to fourteenth weeks of pregnancy, as characterized by some disturbance in appetite and reactions to food in a fairly large percentage of women, possibly up to one third of pregnant women. The panel felt that the term "hyperemesis gravidarum" or "pernicious vomiting of pregnancy" was applicable to a few patients who exhibited intractable vomiting and signs of disturbed nutritional status, such as alteration of electrolyte balance, 5 per cent or more weight loss, ketosis, and acetonuria, with ultimate neurological disturbances, liver damage, retinal hemorrhage, and renal damage. It was felt that this grave disorder was infrequent among pregnant women who had proper early prenatal care and protection from serious emotional difficulties.

In regard to the cause of the condition there was agreement on at least two points of etiological responsibility—pregnancy and psychological factors. The approach to the problem on the basis of an unusual hormonal stimulus and treatment with estrogen and progesterone has not been successful in alleviating the situation. The theory of a toxic substance produced during the first sixteen weeks has not been substantiated. It was considered that psychological factors played a major role in both mild and severe nausea and vomiting of pregnancy. However, there are occasional instances of severe vomiting occurring in the unexpected pregnancy of a previously sterile woman. In such instances the vomiting precedes the suspicion or substantiation of the diagnosis of pregnancy.

It was advised in all instances of nausea

and vomiting associated with pregnancy that a complete examination be carried out to eliminate possible causes other than pregnancy. It was thought that simple measures should suffice when the diagnosis was the more or less physiological nausea and vomiting of pregnancy. These would include rest, sedation, alleviation of nervous and emotional stresses, and the ingestion of frequent small meals high in carbohydrate. Because the mild forms of vomiting may rapidly develop into the intractable form suddenly and without warning these patients should be kept under observation particularly during the first sixteen weeks of pregnancy until the symptoms subside. Hyperemesis gravidarum, however, requires active support as a nutritional problem, which can best be served by hospitalization with proper attention to electrolyte balance, nutritional requirements, and necessary supportive measures gven parenterally.

Most of the drugs tested for these conditions when the investigation included blind and double blind studies had about the same level of effectiveness as the placebo. The groups of drugs were: (1) antihistaminics and the related antimotion sickness drugs; (2) anticholinergics; (3) vitamins; and (4) depressants. As there is a specific deficiency of pyridoxine (vitamin B_6) this drug was thought to be of value in the treatment of hyperemesis gravidarum. It was reported that the depressant, chlorpromazine, may have considerable value in the treatment of hyperemesis gravidarum. It was stated that blind studies have not been performed but reports were made of cessation of symptoms in hyperemesis gravidarum in one to five days. It was further advised, however, that such patients be watched carefully for evidence of blood and liver damage, and since serious side effects have been associated with chlorpromazine its use should be minimized in the milder form of nausea and vomiting of pregnancy.

Considering the fact that vomiting is one of the commonest symptoms associated with functional and with organic disease in man and in the animal kingdom, it is not surprising that vomiting of pregnancy remains as baffling a symptom to the modern physician as to generations of his predecessors. It is a fortunate circumstance that although the cause is unknown facilities for its control and possible relief are becoming more available.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

REPORT OF PRESIDENT

The year 1955 presented many problems for the officers and committees of the Louisiana State Medical Society, but on the whole, much has been accomplished.

The Society was represented at the meeting of the AMA in Atlantic City in June, 1955 by your President, Secretary-Treasurer and Chairman of the Council on Medical Service and Public Relations. Drs. P. H. Jones and J. Q. Graves represented the Society in the House of Delegates.

During the regular AMA session, the question of admitting osteopaths on the same basis as medical doctors was argued very strongly on the floor of the House of Delegates after almost slipping by us. Finally, it was voted not to accept them at this time.

You are reminded that the AMA is making a much stronger effort in regard to legislative matters than ever before and is forwarding information to us as quickly as possible.

An interim meeting in Boston was attended and sessions of the House of Delegates were followed.

The Conference of Medical Society Executives held in Chicago in January, 1956 was attended by Dr. Cole, who reported that excellent ideas were presented by very capable executives on various phases of medical society problems. Dr. Elmer Hess, President of the AMA in a letter to the office of the Secretary-Treasurer, stated that

he was pleased with the results of this meeting where many new ideas were presented.

The Regional Legislative Conference in Chicago in October was attended by Dr. C. J. Brown. A similar meeting where important legislative problems were considered was covered by Dr. Cole in Dallas in November.

Drs. M. C. Wiginton and J. P. Sanders attended the Rural Health Conference in Portland, Oregon. The benefits of this conference continue to be important, and its activities are increasingly helpful in the rural areas. Rural medical care should continue to improve under its guidance.

The American Medical Education Foundation met in Chicago on January 22, and Dr. Edgar Hull has reported on problems of interest to us and of aid to our medical schools.

Many meetings have been attended throughout the state. The Third District Meeting in Lafayette; Second District Meeting in Harahan; Founders Day Meeting in Alexandria; East Baton Rouge Parish Meeting in Baton Rouge; and Fourth District Meeting in Shreveport were all attended by your President and Secretary. Your Public Relations Counselors and Legislative Consultant appeared before most of these groups.

On March 1, your President, and Dr. Cole and Dr. W. Robyn Hardy attended a fine meeting of the Fifth District and Ouachita Parish Medical Societies, where Dr. Hess was guest of honor and spoke to the Rotary Club and District Medical Society meeting.

The Louisiana Health Council met in New Orleans. This Society was represented by your President and Secretary, who found these sessions interesting and productive of better relations for the State Society. This Society is a valuable aid to state health problems, and it seems necessary to encourage their work. Many rural areas throughout the state continue to need their help.

The Senate Finance Committee held hearings through most of March. Our ablest and most interested doctors from all over the nation testified before the committee on HR-7225. Each state society was requested to send a representative and Dr. P. H. Jones appeared on March 23. He feels that much truth was spoken by the medical representatives, but we fear that many of our legislative representatives in Washington have already decided in favor of this bill.

Telegrams and letters were sent to our senators and members of the Senate Finance Committee, urging them to consider carefully two dangerous portions of this bill. Namely, total disability payment at age 50, and to lower age limit of pensions to women to age 62 instead of 65.

Malpractice suits continue to increase throughout the state with amounts awarded reaching astounding proportions. Our attorney, Mr. St. Clair Adams, has handled many cases for the Society and prosecuted many offenders for the State Board of Medical Examiners. All of us are cautioned to observe certain rules on prevention of malpractice suits, by avoiding unwise comment on questionable cases and by keeping complete records on all cases. Proper use of our Mediation Committee, with reasonable discussion with patients concerning fees, will materially reduce these harassing suits.

Questionnaires concerning malpractice insurance sent to our membership netted 957 replies. The Executive Committee felt that nothing further should be done at this time toward securing information from doctors about such insurance since the response to the two questionnaires sent out seemed wholly inadequate.

After many meetings, the special committee appointed by your President to select an Assistant to the Secretary recommended the employment of a Legislative Consultant and a firm of Public Relations Counselors to work with the Secretary-Treasurer's office. The Executive Committee approved the employment of these men. Both the Legislative Consultant and the Public Relations Counselors have been busy with their new work. The employment of the Public Relations Counselors and Legislative Consultant marks an important step forward in the proper management of our medical problems. A public relations program is under way and a code of ethics with television, radio and press is in operation. Our Legislative Consultant has been busy contacting doctors and legislators all over the state, trying to improve our position in political matters, particularly chiropractic. Both groups have appeared before parish and district societies frequently. The Executive Committee is to be congratulated on the approval of the employment of the Public Relations Counselors and Legislative Consultant.

The Council on Medical Service and Public Relations and Dr. Cole are also to be congratulated on the monthly newsletter "Capsules", giving current information of interest to the medical profession. You are urgently requested to read this letter carefully, as a great amount of time and effort is expended in getting this bulletin out to you.

Much time has been spent by your officers and many members of the Society in education of the public and working against Chiropractic. The Committee on Public Policy and Legislation, Dr. Boyd, Chairman, and our Legislative Consultant have worked hard on this problem which comes up every legislative year. Strong efforts are still necessary to post our membership and educate the public about this menace.

Many special and standing committees have done much work, and I want to express my appreciation for their work. Some of these are: Public Policy and Legislation Committee, Dr. Elmo Boyd, Chairman; Committee on Congressional Matters, Dr. C. J. Brown, Chairman; Committee on Child Health, Dr. Sims Chapman, Chair-

man; Committee on History of Medicine in Louisiana, Dr. Isidore Cohn, Chairman; Committee on Federal Medical Services, Dr. I. Gajan, Chairman; Council on Medical Service and Public Relations, Dr. Robyn Hardy, Chairman.

I desire to express my sincere thanks for the privilege of serving as President to the Society as a whole, to all the committees, and especially to the Executive Committee for their cooperation during 1955-56. I want to thank, particularly for their counsel and support, Dr. C. Grenes Cole, Secretary-Treasurer, who has been especially helpful to me with sound advice, Drs. Robyn Hardy, Ashton Thomas, and P. H. Jones. Recognition and thanks are also given to Miss Annie Mae Shoemaker, Assistant Secretary-Treasurer, and the office personnel for their cheerful and efficient work.

Recommendations

1. Questionnaire to secretaries of parish medical societies and councilor of each district, in regard to the activities of respective societies.
2. Meetings of presidents and secretaries of the parish and district societies to be held semiannually, to better coordinate efforts for improvement of Organized Medicine.
3. District councilors make every effort to better organize the district and parish societies.
4. Continue membership in LOSL and the committee representing the State Society be selected from the personnel of the Committee on Public Policy and Legislation.

MAX M. GREEN, M. D., President

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

PHYSICIANS REPORT ON USE OF NEW SYNTHETIC HORMONE

A preliminary report on the use of a new synthetic hormone to make up for hormone gland activity lost through disease or surgery was made recently by two Ohio physicians.

The hormone, fludrocortisone acetate, appears to be 15 to 20 times as effective as hydrocortisone, another synthetic now used for such conditions.

The greatest usefulness of fludrocortisone probably will be in adrenal insufficiency (a disorder in which the adrenal glands fail to function properly) and in cases of surgical removal of the glands in cancer or other serious illnesses, they said.

The physicians, who made their report in the Dec. 24 Journal of the American Medical Association, gave the hormone to patients with a variety of disorders, including a serious nervous condition characterized by loss of appetite, and eye disease, rheumatoid arthritis, and adrenal cortical hypofunction.

The hormone is similar to cortisone and hydrocortisone in its ability to inhibit the pituitary stimulation of the adrenal gland; produce loss of nitrogen, calcium, and phosphorus; inhibit inflammation, and produce a sense of well being.

It also resembles desoxycorticosterone, another synthetic hormone, in its effect on salt, water, and potassium balance. However, its use may be limited in conditions such as rheumatoid arthritis in which it causes too much salt and water retention, they said.

The report was made by Drs. George J. Hamwi and Robert F. Goldberg, from the division of endocrinology and metabolism, department of medicine, Ohio State University, Columbus, Ohio.

NEW DRUG FOR MENTALLY ILL

New aid for the mentally ill was promised by Dr. Nina Toll in a paper presented before the

Section on Medical Sciences, American Association for the Advancement of Science meeting in Atlanta, December 27.

A new drug helps make office psychotherapy wth schizophrenic patients more effective and shortens the course of therapy, Dr. Toll reported. Patients taking the drug are better able to understand their symptoms, can talk about their illness, and become more alert. As a result, therapy is more effective and the illness shorter in many cases.

Frenquel is the drug which proved so helpful. It is the new anti-hallucinatory, anti-confusion drug discovered in the research laboratories of The Wm. S. Merrell Company, Cincinnati drug firm.

COMMITTEE OUTLINES PROGRAM FOR POISON CONTROL

The American Medical Association's Committee on Toxicology has outlined four methods for combating the perennial problem of accidental childhood poisonings.

The methods include education, more stringent laws, establishment of poison centers, and greater efforts by local physicians. They were discussed in a report prepared for the committee by Dr. Jay M. Arena, Durham, N. C., and published in the Dec 17 Journal of the American Medical Association.

Bernard E. Conley, Secretary of the committee, said " . . . the curiosity of the children coupled with the casualness with which many parents handle and store drugs and chemicals are predisposing factors to most unintentional poisonings."

The "alarming feature" of the problem is the regularity with which various household agents and drugs are swallowed by children, the report said. Leading causes are drugs, especially aspirin and barbiturates, petroleum products, lead, corrosive agents such as lye, and arsenic.

ARE YOUR DOCTOR'S BILLS TOO HIGH?

Who in the world doesn't grumble about a doctor's bill now and then? Are the "men in white" justified in charging the fees they do; or are they gigging the helpless public?

These questions and other provocative ones in their connection are answered in an illuminating article on "The Cost of Educating a Doctor" in the February issue of Know the FACTS magazine published in Washington, D. C. by Oliver Presbrey, with Martha Rountree as editor-in-chief.

Specifically, the article stresses the high cost, in time and money, required of medical aspirants. A person who wants to be a doctor can expect to pay as much as $37,000 in the course of fourteen years he will spend preparing to hang out his shingle.

Yet this almost prohibitive expense in time and money has not been a deterrent to persons wanting a medical career. "There are 210,886 doctors in the U. S. today with 28,254 men and women studying medicine in 75 medical institutions," states this discussion. What is the reward? "A chance to make more than $28,000 annually (after several years of practice); a chance to make medical history (research); and an opportunity to render invaluable service to mankind and the community."

PEDIATRIC COURSES TO BE CONDUCTED AT THE CHILDREN'S HOSPITAL OF PHILADELPHIA

The following short courses will be conducted at The Children's Hosipital of Philadelphia in May and June 1956.

1. *Pediatric Advances for Pediatricians and General Practitioners.* May 28 through June 1, 1956. A Refresher Course conducted by the Staff of the Children's Hospital of Philadelphia, in collaboration with the Department of Pediatrics of the University of Pennsylvania and the Camden Municipal Hospital. Tuition—$100.00.

2. *Practical Pediatric Hematology.* June 4, 5 and 6. Conducted by Dr. Irving J. Wolman and other members of the Hematology Department of the Children's Hospital, under the auspices of the Graduate School of Medicine, University of Pennsylvania. Tuition—$60.00.

3. *Blood Group Incompatibilities and Erythroblastosis Fetalis.* June 7 and 8. Conducted by Dr. Thomas R. Boggs, Jr. of the Philadelphia Serum Exchange of the Children's Hospital of Philadelphia, under the auspices of the Graduate School of Medicine, University of Pennsylvania. Tuition—$50.00.

For information write to Irving J. Wolman, M. D., Children's Hospital of Philadelphia, 1740 Bainbridge Street, Philadelphia 46.

LOUISIANA HEART ASSOCIATION

The second scientific session and first general assembly meeting of the Louisiana Heart Association, an affiliate of American Heart, will be held at the Tulane University auditorium on May 19 with registration scheduled for 9 a.m., Dr. Frank W. Pickell of Baton Rouge, president of the Association, announced recently.

Principal speaker will be Dr. Albert Dorfman, Associate Professor, Department of Pediatrics, Bobs Roberts Hospital, University of Chicago,

Also scheduled to speak are Dr. Charles A. Beskin of Baton Rouge and Dr. George Wilson of Shreveport.

TRANQUILIZING DRUGS

A "new ray of hope," the tranquilizing drugs; plus more psychiatrists, offer the best answer to the rising incidence of mental illness. Dr. Nicholas A. Bercel of the University of Southern California School of Medicine told a meeting of the

American Pharamaceutical Manufacturers Association in Los Angeles.

He discussed three of the more widely used tranquilizers, reserpine, chlorpromazine and meprobamate and reported that meprobamate is the "best, safest and simplest drug for ordinary tension that besets so many otherwise healthy people." He also suggested the possibility of its use by the average "nervous" person to eliminate the use of alcohol and barbiturates.

The anatomy of anxiety and the inadequacies of earlier drugs and psychotherapy in eliminating the symptom were outlined. Barbiturates and other sedatives were held inadequate because of their action on general rather than specific areas of the nervous system and because of the problems of tolerance, addiction and impermanence of action.

NEW PSYCHIC STIMULANT

Ciba Pharmaceutical Products recently announced the introduction of a new stimulant and anti-depressant called Ritalin.

The new product, which has been tested clinically on more than 2,000 psychiatric and non-psychiatric patients during the past 15 months, has been available for prescription since March 1st.

Ritalin (methyl-phenidylacetate hydrochloride CIBA) is described by Ciba as a "mild cortical stimulant which counteracts oversedation, lassitude, depression and certain other side effects of barbiturates, antihistamines, chlorpromazine and rauwolfia derivatives."

Because no appreciable increase in blood pressure and pulse rate has been recorded in the use of Ritalin, it has also proved valuable in the treatment of patients with hypertension who have been previously treated by tranquillizing drugs alone.

GALACTOSEMIA

The cause of an often fatal metabolic disease of children has been discovered by scientists of the Public Health Service's National Institute of Arthritis and Metabolic Diseases, Surgeon General Leonard A. Scheele announced on March 12.

Drs. Herman M. Kalckar, Elizabeth P. Anderson, and Kurt J. Isselbacher, in work conducted at the National Institutes of Health, Bethesda, Maryland, have unraveled much of the mystery surrounding the little understood children's disease, galactosemia, also known as galactose diabetes.

This disease ordinarily appears within a few days after birth. The infant suffering from galactosemia is unable to utilize or even tolerate milk in any form. Lactose, often called milk sugar, contains another sugar, galactose. This substance cannot be handled by the child's system if he has galactosemia.

The Institute scientists have discovered a hitherto unknown enzyme in normal red blood cells, which they call P-Gal transferase. This enzyme, they found, is necessary to complete conversion in the body of galactose into glucose, the common sugar of the blood.

STUDY SHOWS MOST EFFECTIVE SEASICKNESS DRUGS

Chances of seasickness are lowest among passengers who are under 25, slightly thin, traveling midship on a second or third voyage—and are supplied with one of 11 drugs recently proved to be helpful.

A five-month study of 26 anti-motion sickness drugs among almost 17,000 servicemen showed that 11 of them were helpful and three of these were more effective than the rest.

The study was reported in the March 3 Journal of the American Medical Association by an Army, Navy, and Air Force motion sickness team.

The tests were run from Nov. 15, 1954, to April 10, 1955, on military transports crossing the Atlantic. Ten eastward and five westward crossings were used. Passengers were given unmarked pills which were either drugs or placebos. Placebos are inactive substances used as a yardstick against which the action of real medicines can be measured.

The study showed that susceptibility to seasickness decreased with age; that individuals quartered fore and aft were more susceptible than those in midship; that heavier individuals were slightly, but not significantly, more susceptible than their lighter colleagues. The activities of the men while on board had no relation to their susceptibility to illness.

Motion sickness was twice as frequent in persons who had had it before as in those with no history of sickness. However, seasickness was less frequent on westward trips—possibly because all the passengers had had at least one previous crossing.

The top three drugs by trade name are Bonamine, Phenergan, and Marezine when given three times daily. All showed prolonged activity, the team reported.

"STINGLESS" FIRST AIR CREAM ANTISEPTIC INTRODUCED BY JOHNSON & JOHNSON

A new cream-type medication that provides antiseptic action without stinging or pain in treatment of cuts, abrasions, burns, chapping, sunburn and insect bites has been developed by Johnson & Johnson, it was announced recently.

Known as First Aid Cream, this latest addition to the Johnson & Johnson product line is the result of seven years of intensive research to develop a complete medication. First Aid Cream fights infection, relieves pain and aids healing simultaneously. It can be applied directly to open wounds and will not cause stinging or pain

that usually results when old-fashioned harsh antiseptics are used.

Following a series of exhaustive tests in clinics, hospitals and households across the nation, First Aid Cream now is being made available to the general public. It is being marketed through the usual retail outlets which handle Johnson & Johnson products.

"BATH LIFT" FOR INVALIDS

With a newly-devloped apparatus, the infirm and those incapacitated by paralysis, rheumatism and similar disorders can get into or out of a bath unaided, and without difficulty or danger, say the British firm who designed and manufactured it. Successful trials were carried out at Stoke Mandeville Hospital. The "bath lift" has a seat with backrest which is placed in the water and raised to the rim of the bath by water pressure. The patient sits on the seat, lifts his legs into the bath and, on pushing a lever, is lowered gently into the water. A contrary movement of the lever returns the seat to its original position. A rubber tube from the tap to the base of the apparatus supplies the hydraulic pressure (normal mains pressure of 15 lb. per sq. in. will raise a weight of 490 lb.).

(Levit Engineering Co., Summer Road, Croydon, Surrey, England.)

DR. TABB TO SPEAK AT AMA CONVENTION

Dr. Harold G. Tabb, of New Orleans, Louisiana, will discuss the subject of *Fractures of the Facial, Orbital, Maxillary and Their Management*, at the American Medical Association Convention in Chicago, Illinois to be held June 12-14.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

The thirty-third annual convention of the Woman's Auxiliary to the American Medical Association will be held in Chicago at the Conrad Hilton Hotel, June 11 through June 15, 1956. Convention Chairman is Mrs. Leonard J. Houda and Co-chairman, Mrs. Maurice M. Hoeltgen.

A cordial invitation is extended to all members of the Woman's Auxiliary, their guests and the guests of physicians attending the convention of the American Medical Association, to participate in all social functions and attend the general meetings of the Auxiliary.

Headquarters will be at the Conrad Hilton Hotel. Tickets for the various social functions will be available at the registration desk only. The Hospitality Room will be in the Normandie Lounge.

It is requested that members and guests register early and obtain their badge and program. Registration will begin at 12:00 noon on Sunday.

One of the highlights of the meeting will be a luncheon on June 12, in honor of the Past Presidents of the Woman's Auxiliary at which Mrs. Mason G. Lawson, President, will preside. Guest Speaker for this occasion will be Mr. Leonard E. Read, President of the Foundation for Economic Education, who will speak on "The Positive Approach to Combatting Socialism."

BOOK REVIEWS

Pomp and Pestilence. Infectious Disease, Its Origins and Conquest; by Ronald Hare, Professor of Bacteriology in the University of London. New York, N. Y. Philosophical Library, Inc., 1955. pp. 224, $5.75.

This neat pocket-sized volume, lacking illustrations, provides a comprehensive account of the progress made in the elucidation of the epidemiology of infectious diseases and the application of effective measures for their control. The story is told so simply that at first glance the information may seem trivial, but on more careful reading it is discovered that the author has the rare facility of presenting technical data in terms which an intelligent layman can appreciate.

All infectious agents are defined as "parasites", irrespective of their etiologic classification or their host-parasite relationship. It is heartening to have a microbiologist discuss animal parasites with the same understanding as he does bacteria and viruses. Moreover, with equal familiarity the author considers the effects of pathogens on the individual and on the human community.

The format of the book is conservative but attractive; the text is free of typographic errors, well documented and there is a useful combined author and subject index. Because of its accuracy and broad comprehension of the problems discussed, the volume should provide the physician with profitable leisure reading. And he can recommend it to those of his patients who desire authoritative information on infectious diseases.

ERNEST CARROLL FAUST, PH.D.

Hemorrhage of Late Pregnancy; by John S. Fish, M. D., Springfield, Ill., Charles C Thomas, 1955. Pp 180, Price $5.50.

In a most comprehensive review of the subject, the author discusses placental anatomy, clinical characteristics and diagnosis, as well as placental diagnosis of hemorrhage in late pregnancy. Of 5,806 private cases, the incidence of late pregnancy hemorrhage by cause was found to be as follows: rupture of marginal sinus 39 per cent, placenta previa 30 per cent, abruptio placentas 10 per cent, and undetermined 10 per cent.

Fish and his associates in the Bartholomew group have shown that bleeding from rupture of a marginal sinus in the placenta is more common than generally accepted. The illustrations are excellent and the entire book is informative. It would be easier reading if there were not numerous instances of sentences eight to twelve lines long.

EUGENE H. COUNTISS, M. D.

Cerebral Vascular Diseases; Transactions of a Conference Held Under the Auspices of The American Heart Association, Princeton, New Jersey, January 24-26, 1954; Irving S. Wright, Chairman, E. Hugh Lucky, Editor, New York, N. Y. Grune & Stratton, 1955, Pp 167, Price $5.50.

This is a series of fourteen presentations and discussions by 34 conference members, on cerebral vascular disorders. In addition to the conventional topics of anatomy, physiology, pathology, diagnosis and treatment, there are presentations dealing with the emotional problems of cerebral vascular disease and their sociologic, economic and personal significance.

The volume provides a good survey of the present status of this field. Dr. H. Houston Merritt's review of neurologic diagnostic aspects shows very little change since his well known treatment of the same subject that is now about twenty years old. This reviewer regrets that more time and space were not allowed to Drs. Adams, Scheinker and Zimmerman to elaborate their respective ideas concerning the pathology of cerebral vascular diseases. It is interesting to see the extent to which careful workers in this basic field may still disagree about the mechanisms underlying macroscopic changes seen in apoplexy. The chapter by Dr. Rusk on rehabilitation deserves the widest diffusion because of its immediate usefulness in increasing the salvage rate among hemiplegics. His opportunities for evaluating rehabilitation measures are perhaps unique, and his presentation should help to dispel the atmosphere of therapeutic gloom which has traditionally surrounded the hemiplegic patient.

Presumably to reduce the cost of the volume, the slides used by the speakers in the original conference were not reproduced. One occasionally misses their presence. Some of the presentations have an adequate bibliography appended; several have none, and this was sometimes regrettable, notably in the chapters dealing with pathology and the physiology of the cerebral circulation. Should not one of the purposes of this volume be to whet the appetite of the busy nonexpert?

E. B. FERGUSON, JR., M. D.

Animal Agents and Vectors of Human Disease; by Ernest Carroll Faust, Ph.D., Philadelphia, Lea and Febiger, 1955, pp. 660, with 216 text figures and 9 plates, Price $9.75.

This new text book of Parasitology by Professor Faust covers about the same range of subject matter as Craig and Faust's "Clinical Parasitology". It is somewhat briefer, particularly in the clinical aspect of the infections, and the subject matter is differently arranged so as to place the natural history, pathological and clinical manifestations, diagnosis, treatment and prevention of all parasitic infections together in preliminary chapters. This has value in tabular presentation, and shortens the text dealing with individual parasites, but requires search for data and leads to an occasional omission.

The data on each parasite are presented in Dr. Faust's concise, authoritative and comprehensive manner, and give the latest information available. Most of the excellent illustrations are Dr. Faust's own drawings, many taken from his previous publications. The only unfortunate economy is in the plates of malaria parasites which are in black and white instead of color. The section on Technical Aids includes a variety of approved methods of examination in accurate detail. The list of references to the literature at the end of each chapter includes most of the important sources. Other references in the text would be of more value to the reader if a brief indication of the publication were included.

This book will undoubtedly become widely used as a textbook for students of medicine and parasitic biology, and should be in the library of every individual and institution interested in the animal parasites of man. The author and publishers are to be commended on an excellent product.

HENRY E. MELENEY, M. D.

Psychocutaneous Medicine; by Maximilian E. Obermayer, M. D., Springfield, Illinois, Charles C Thomas, 1955, Pp 487, Price $9.75.

Whether, and to what degree, emotional factors are responsible for many of the common dermatoses, is moot. Dr. Obermayer believes that psychosomatic factors are of great importance in skin diseases and collects much evidence in support of his belief. Yet he makes a real effort to preserve an unbiased viewpoint; contrary views are also incorporated into his book. This reviewer found the section on stigmatization most interesting. The book should have a wide appeal.

VINCENT M. DERBES, M. D.

The Therapy of Skin Tuberculosis; by Gustav Riehl and Oswald Köpf, Springfield, Illinois, Charles C Thomas, 1955, Pp. 247, Price $6.75.

Though skin tuberculosis is not a common disease in this country cases continue to be seen. Thus we are fortunate to have a very thorough and scholarly book on the subject by a man with extensive experience with this condition. Professor Riehl, after whom Riehl's melanosis takes its name, has done an excellent job.

VINCENT J. DERBES, M. D.

Reflections on Renal Function; by James R. Robinson, M. D., Springfield, Charles C Thomas, 1954, pp 162, Price $3.50.

This is an interesting and refreshing small monograph based on lectures given to students in Cambridge. As the author states, it is intended to bridge the gap between the chapters in general textbooks and larger treatises such as that of Homer Smith. The author contends that "renal physiology is controversial and perhaps ought to be more so. There is a temptation, especially when teaching, to seek clarity by a too well organized presentation which gives the impression of a greater understanding than we really have." The author has steered a middle course, but, in doing so, has indicated his impressions of the various issues and problems in a clear, informal, and critical manner.

The presentation of clearance concepts is excellent, as is the discussion of glomerular filtration and tubular reabsorption and secretion. Glomerular filtration is conceived as a variable and the possibility presented that protein is filtered in small amounts by the healthy glomerulus and subsequently reabsorbed by the tubule. It is suggested that the main function of the kidney is to safeguard the composition of extracellular fluids by conserving soluble constituents of the body. The tubular epithelium thus becomes a most important gland of internal secretion, for it secretes no less than 180 liters of extracellular fluid into the blood every day. This implies that a diuretic which increases the urine output without increasing glomerular filtration rate should be classed as an inhibitor and not a stimulant of renal activity. The suggestion is also made and evidence cited that the loops of Henle may have the function of assisting the bulk-reduction function of the proximal tubules by passive reabsorption of water and salts, thus allowing the attainment of osmotic equilibrium between the fluid passing through the thin limb and the blood in the vasarecta. The "counter-current" hypothesis of Hargitay and Kuhn for the production of a hypertonic urine is discussed in detail in connection with this function of the loops of Henle and the question raised as to its significance in man. The discussion of the mechanism of action of the anti-diuretic hormone is thought-provoking. By analogy with results on frog skin, the action of the hormone may be that of opening up of pores and the reabsorption of osmotically free water in the distal tubule.

The above examples should serve to illustrate the nature of these "Reflections." Throughout the discussions of the excretion of water and sodium, renal control of acid-base balance, regulation of renal function, regulation of body fluids, there is a delightfully told story, combining the historic and traditional points of view with the suggestions from recent work. The problems are summarized in an epilogue which might well be read before as well as after the rest of the material. The monograph is heartily recommended to students and physicians as a stimulating, provocative and timely account of what physiologists believe to be the mechanisms by which the kidney performs its valuable functions.

H. S. MAYERSON

PUBLICATIONS RECEIVED

Little, Brown & Co., Boston: Therapy of Fungus Diseases, edited by Thomas H. Sternberg, M. D., and Victor D. Newcomer, M. D.

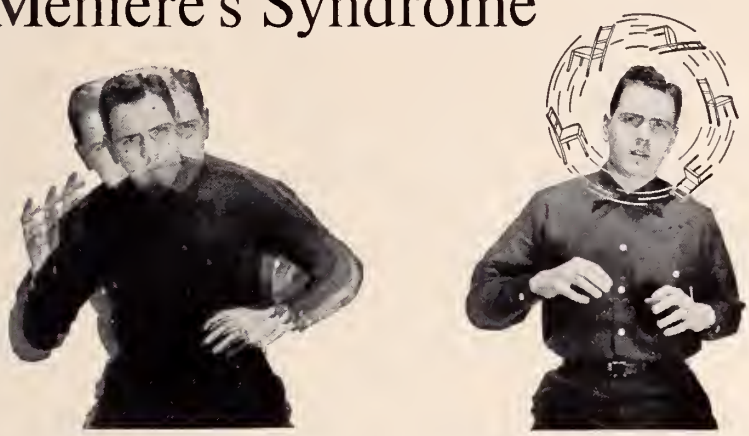
Prentice-Hall, Inc., Englewood Cliffs, N. J.: The Truth About Cancer, by Charles S. Cameron, M. D.

W. B. Saunders Co., Phila.: The Neuroses in Clinical Practice, by Henry P. Laughlin, M. D.; Clinical Recognition and Management of Disturbances of Body Fluids, by John H. Bland, M. D. (2nd edit.); Electrocardiography, Fundamentals and Clinical Application, by Louis Wolff, M. D., (2nd edit.).

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3. Tinnitus, usually unilateral, is associated with the deafness and dizziness.

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1. DeWeese, D. D.: Symposium: Medical Management of Dizziness. The Importance of Accurate Diagnosis, Tr. Am. Acad. Ophth. *58*:694 (Sept.-Oct.) 1954.
2. Jackson, C., and Jackson, C. L. (editors): Diseases of the Nose, Throat, and Ear, Philadelphia, W. B. Saunders Company, 1945, pp. 368; 414.
3. Queries and Minor Notes: Ménière's Syndrome, J.A.M.A., *141*:500 (Oct. 15) 1949.

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[1]January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.

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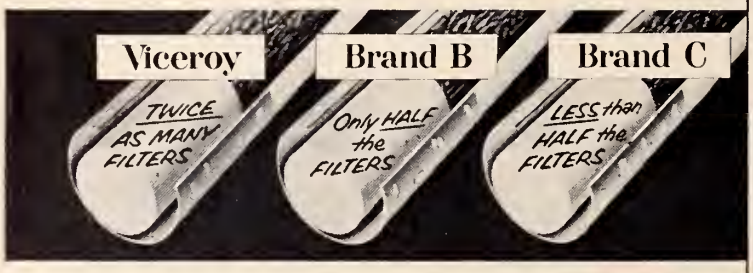


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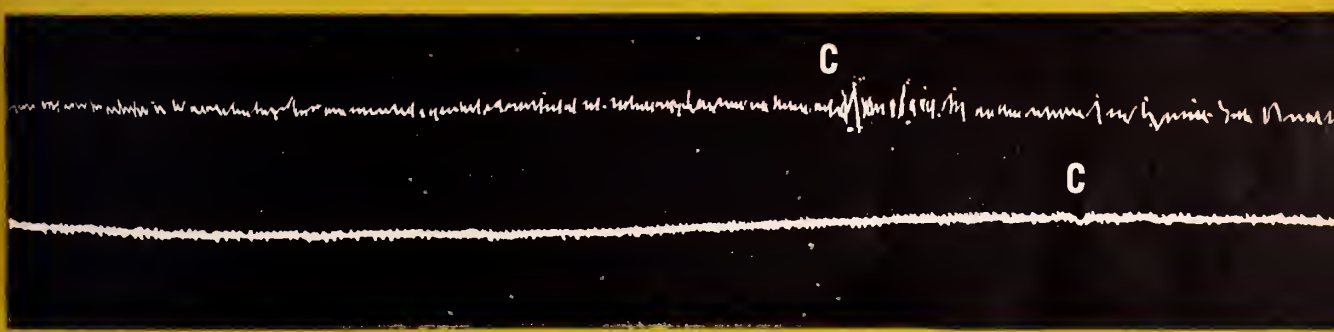
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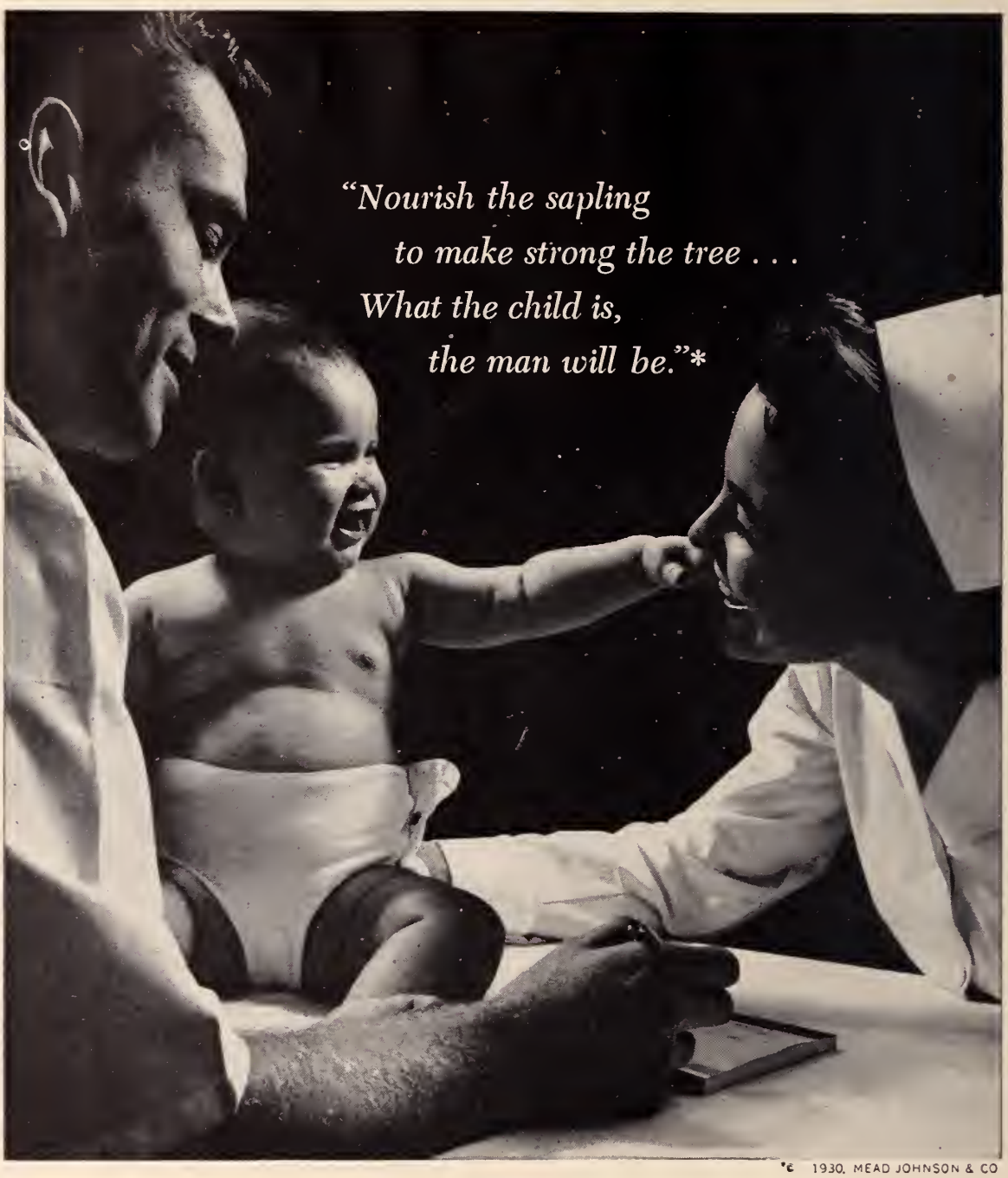
1. Dickel, H.A., et al.: West. J. Surg., April, 1956.

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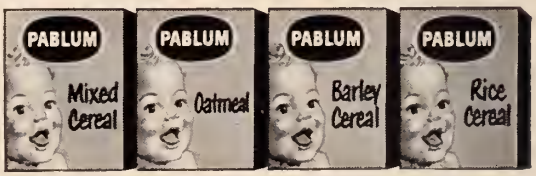
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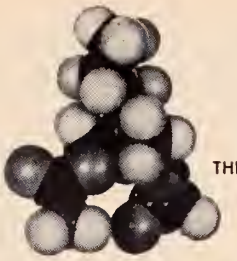
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*Bonica, J.J.; and Backup, P.H.: Northwest Med., 54:22, Jan. 1955.

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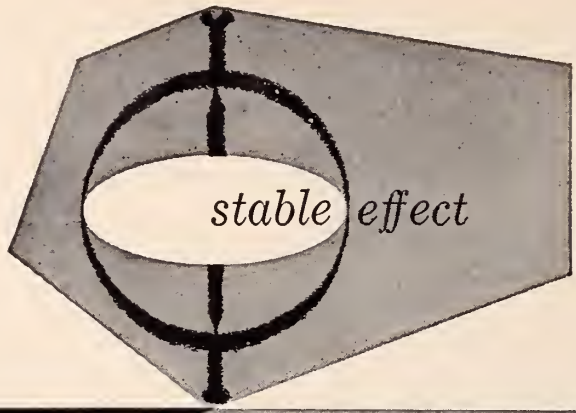
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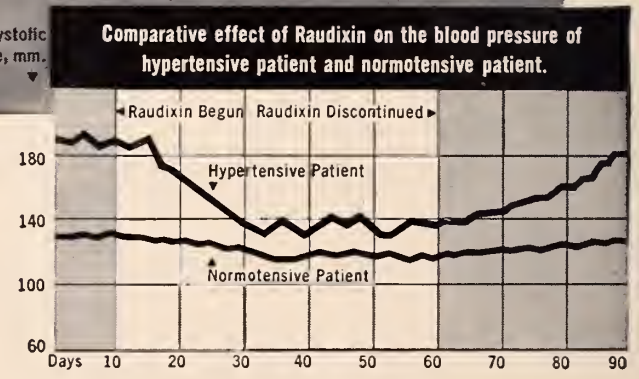


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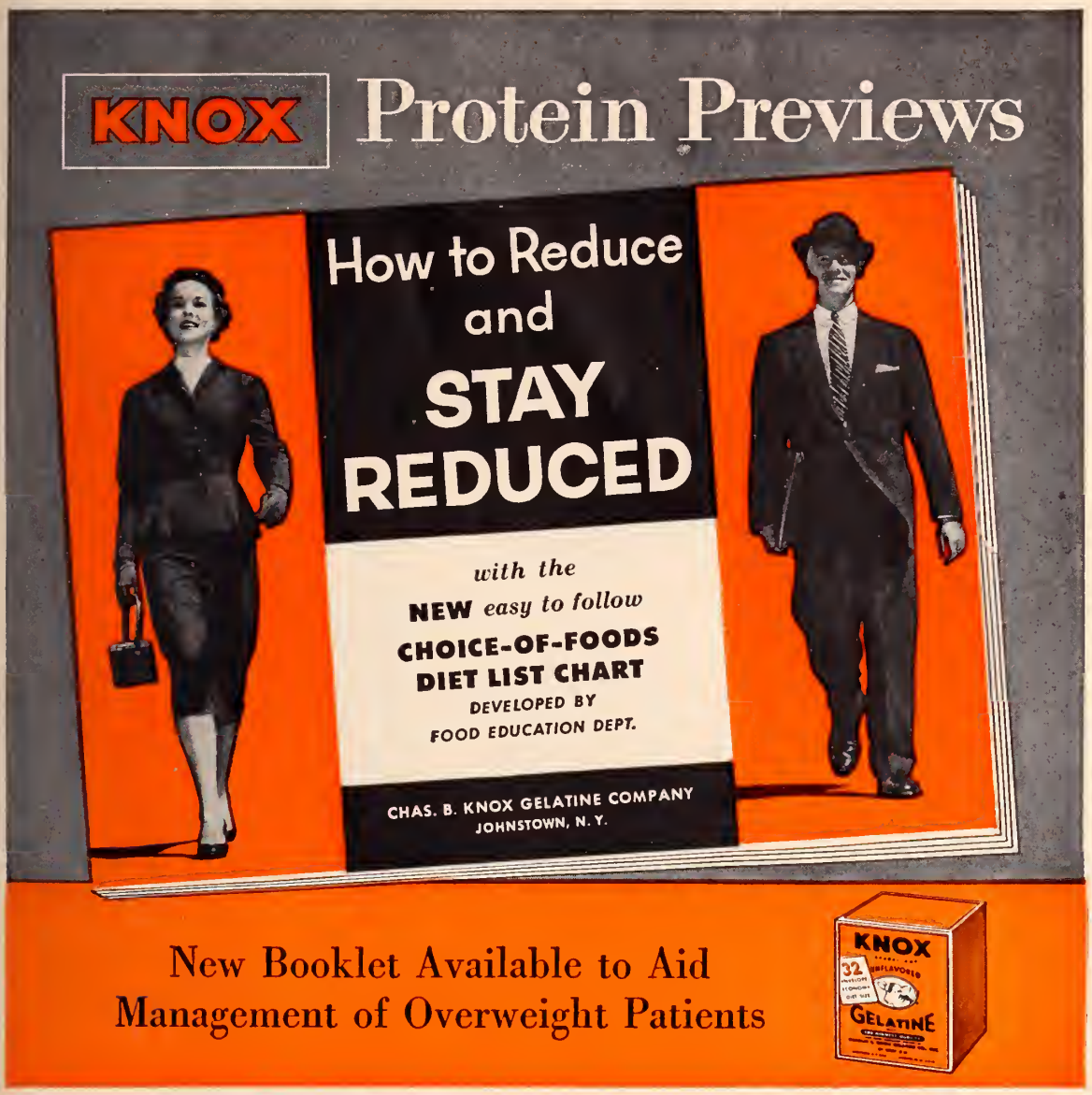
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1. Developed by the U. S. Public Health Service assisted by committees of The American Diabetes Assn., Inc. and The American Dietetic Assn.

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Your patient may like cottage cheese whipped into milk flavored with chocolate and mint, or he can blend it with cranberry juice sparked with lime.

Strained carrots go in milk, broth, or pineapple juice. Flavor the milk blend with nutmeg, the broth with parsley, and the juice with cinnamon. An egg or skim milk powder may be added for a protein bonus.

Strained fruits in fruit juices do well with a squeeze of lemon or a touch of mint.

Then serve them up with dash—

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Add a bright plastic straw. And for garnish, try a sprinkle of spice, a spoonful of sherbet, a dab of whipped cream, or a lemon slice hooked on the edge of the glass. Or frost the rim by dipping the glass in water, then sugar.

Of course, only you can tell your patient just which foods he can and must have. And if you feel that a glass of beer* is acceptable in his specific condition, it may provide the incentive he needs to stay within the limits you set.



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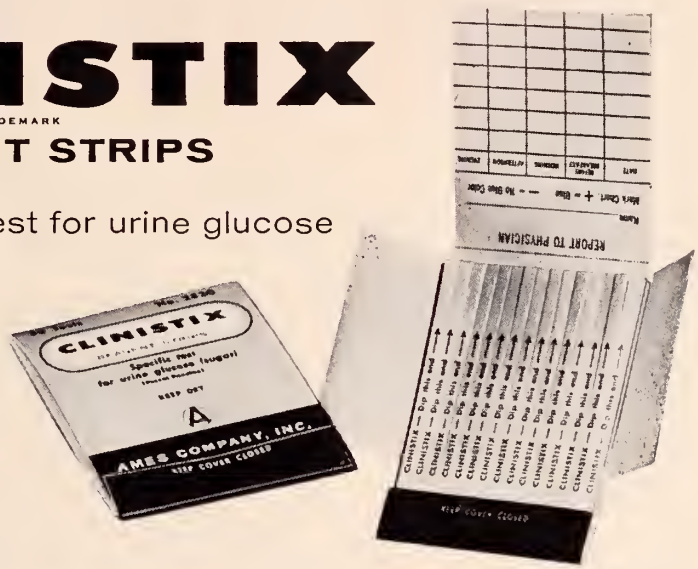
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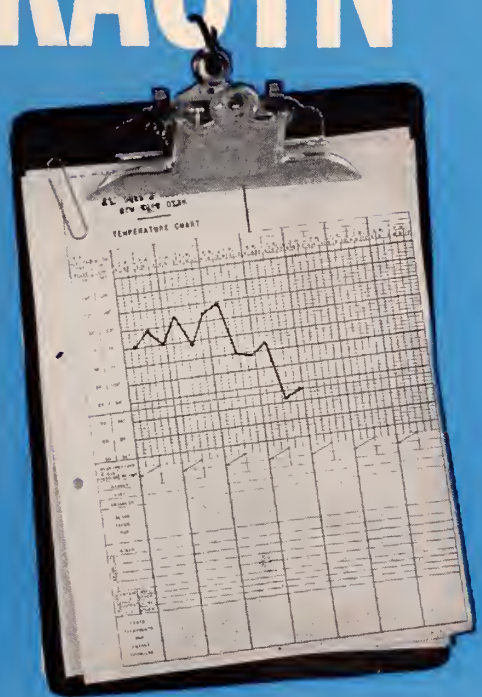


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1. Recommended Dietary Allowances, Washington, D. C., National Academy of Sciences—National Research Council, Publication 302, 1953.
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*Fishberg, A. M.: Hypertension and Nephritis, ed. 5, Philadelphia, Lea & Febiger, 1954, pp. 177-178.

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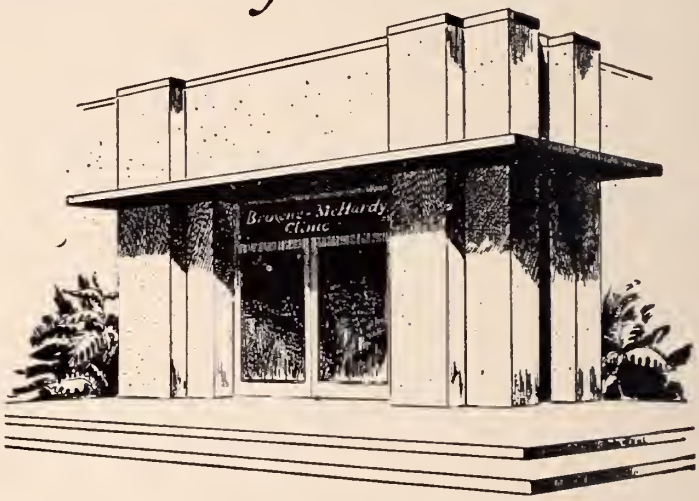
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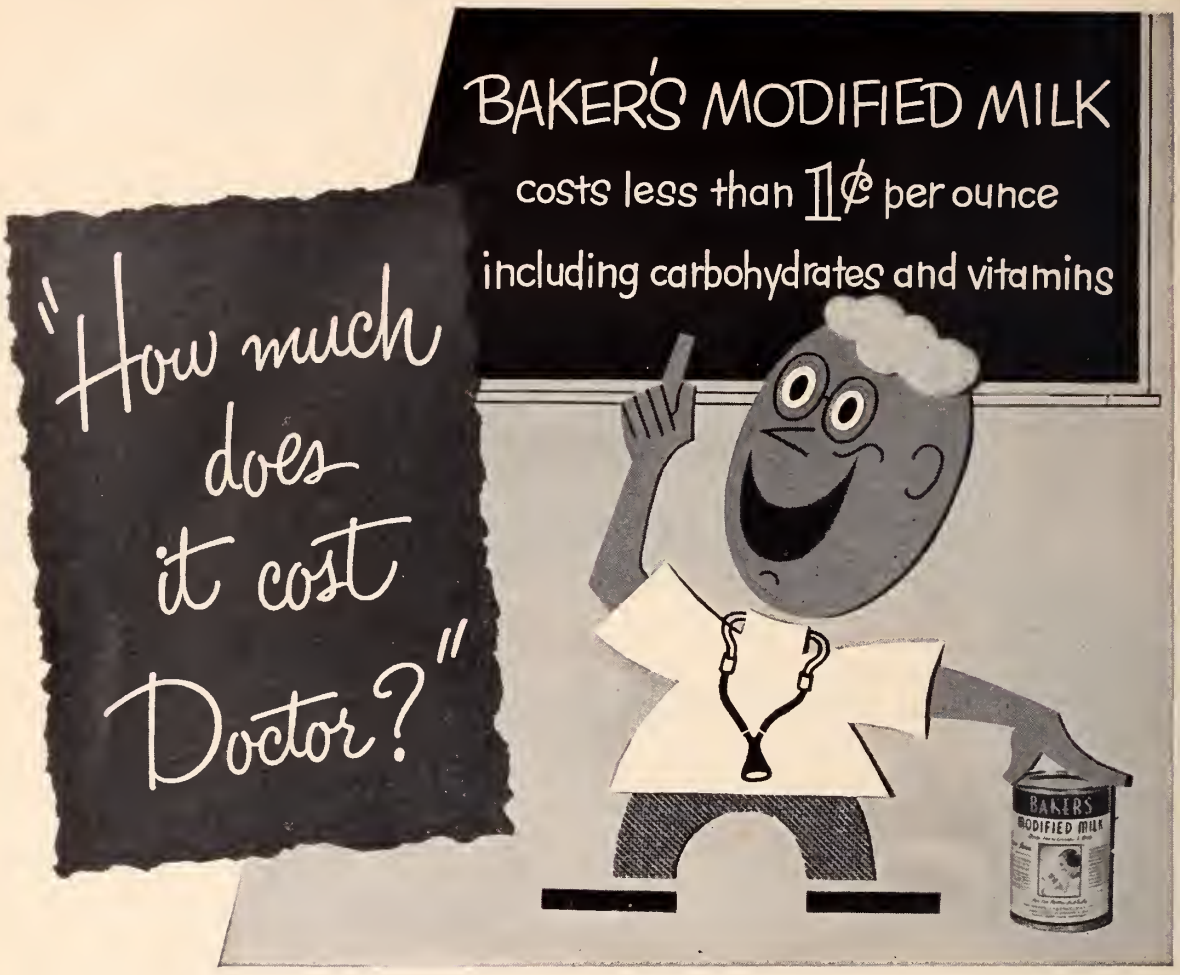
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THE SLIDE IS THE PATHOLOGIST'S PATIENT

Canon II*

I SHALL NOT ISSUE A REPORT ON PREPARATIONS OR MATERIAL FROM ANOTHER PATHOLOGIST'S LABORATORY OR FROM THE INSTITUTION WHICH HE SERVES, WITHOUT MAKING EVERY REASONABLE EFFORT TO INFORM THAT PATHOLOGIST OF THE RESULTS OF MY EXAMINATION.

From time to time, a pathologist may be called upon to give an opinion on material from another pathologist's laboratory or institution. This most often concerns histological preparations, but applies equally to any other material such as a smear or blood for a biochemical determination. The pathologist's opinion may be sought for a variety of reasons: he may have had greater experience with a particular process than the other pathologist; the other man may be young and inexperienced or old and out of date; or, the clinician may merely wish a corroborative opinion on a critical diagnosis. This Canon does not prohibit the pathologist from rendering an opinion; it merely defines a step that he is obliged to take after giving it. Observance of this Canon will avoid misunderstandings and so work for the best interest of the patient.

This Canon implies that when material is brought to a pathologist, he will inquire as to the laboratory or origin and the name of the pathologist who rendered the first interpretation. This offers the consulting pathologist an opportunity to obtain the same information as was available to the initial pathologist before making his diagnosis, and usually it is advisable that he avail himself of it.

The provisions of this Canon can be satisfied best by the consulting pathologist sending a copy of his report to the first or original pathologist at the same time his report is given to the clinician. This report should include a brief statement of how or from whom the specimen came to hand. Under certain circumstances, communication by telephone might be satisfactory and may have the added advantage of agreement on diagnostic terms which have the same essential meaning; it is recommended that it be followed by a copy of the report.

No pathologist is above error and every pathologist will encounter subjects about which his experience is limited. **When a reasonable question or doubt exists, he should seek consultation with another pathologist and should be the first to suggest it.** In that way, a pathologist can obtain the consultant who is considered to be best qualified for a special opinion. Frequent and cooperative consultation among pathologists effects mutual benefit and improvement. It must be remembered that the clinician and the patient always have the right of consultation and the pathologist should respond to such desire willingly and helpfully. A cooperative scientific attitude will minimize those instances in which a consultation is sought surreptitiously. Whenever possible, such a consultation should be arranged between the two pathologists rather than between a clinician and a pathologist.

A corollary to this Canon concerns the situation in which laboratory determinations or diagnoses are made by another pathologist or his laboratory for a pathologist who supplies the material and renders a written report. **Such a report should always include credit to the pathologist or laboratory actually performing the diagnostic work.**

IT IS EVIDENT THAT CANON II STIMULATES PROPER AND ETHICAL CONSULTATION, TO THE BENEFIT OF THE PATHOLOGIST, THE CLINICIAN, AND MOST IMPORTANT, THE PATIENT.

*from Interpretation of The Code of Ethics of the College of American Pathologists.

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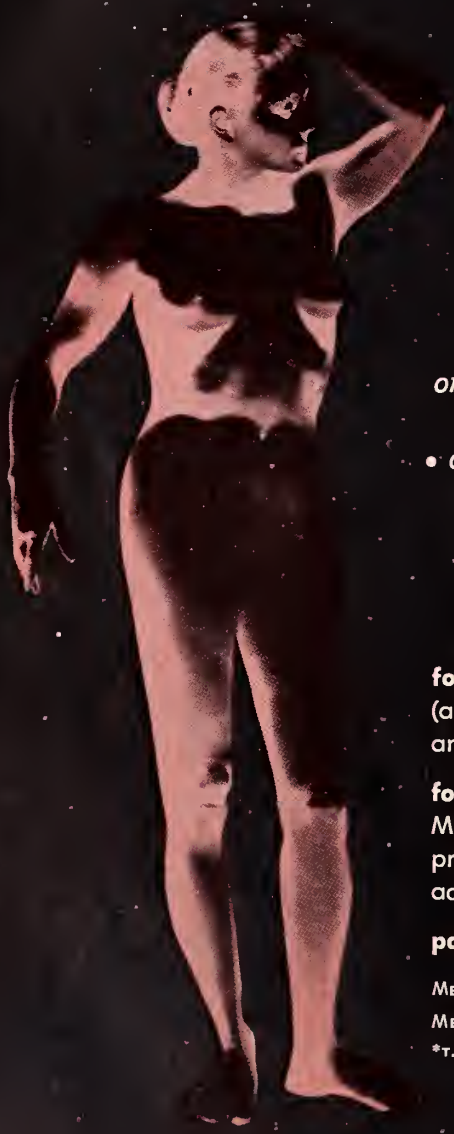
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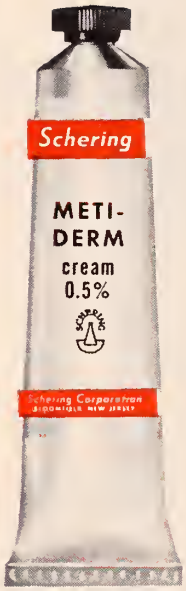
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THE PREVENTION AND TREATMENT OF KETOSIS IN DIABETES *

EDWIN L. RIPPY, M. D. †
DALLAS, TEXAS

In 1870, A. Trousseau was lecturing to a medical class in Paris. He was presenting a patient, a thirty-six-year-old man obviously afflicted with severe symptomatic diabetes in acidosis. In the courtly style of the day, he remarked: "Gentlemen, his glycosuria is of a bad kind, against which medical treatment cannot prevail. Whatever I do, the disease will resist my efforts . . . and ultimately prove fatal." He described another case: "I prescribed 10 grains of levegated chalk to be taken daily . . . a restorative diet . . . the inhalation of oxygen . . . he died two days after this."

Sir William Osler, in his text-book of 1892, stated: "In children the disease (diabetes) is rapidly progressive and may prove fatal in a few days." He added: ". . . no drug appears to have a directly curative influence. Opium alone stands the test of experience as a remedy capable of limiting the progress of the disease." Perhaps the most astute medical thinker of his day, Osler was obligated to add, in discussing therapy in a case of diabetic coma: "The coma is an almost hopeless complication . . . 3% solution of sodium bicarbonate has been used intravenously, but the best that can be said is that it may give the patient a few more hours of complete consciousness."

In those days the disease, diabetes, was devastating. It was an abrupt killer in youth and a slow, insidious disabler in later years. It is almost needless to relate the incident which changed this tragic story into one of hope and promise. In 1921, when the Toronto surgeon, Frederick Banting, and Charles Herbert Best, acting either on a strong scientific conviction or a fine "hunch," and profiting by the work done by those who preceded them, discovered insulin, a new day dawned for the victims of this malicious disorder. Opium, oxygen, chalk and talk were all to be relegated to the folklore of medicine.

Insulin, a powerful, specific weapon, is possibly unsurpassed in its over-all significance by any discoveries before or since. The full dramatic impact of its therapeutic effect is best seen in the treatment of diabetic acidosis, in which instance a literally dying patient is returned not only to life but good health once again.

There are several objectives in the treatment of diabetes:

1. That the affected patient will attain and maintain vigorous health comparable to that of the nondiabetic;

2. That the patient shall be enabled to avoid the acute lethal complication of diabetes—acidosis or ketosis; and

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† Associate Professor of Internal Medicine, Southwestern Medical School of the University of Texas.

3. That the patient, by long-term proper control, may hinder the progress of, or even possibly prevent, the "precocious senility" of atherosclerosis, with its consequent evil effects on the eyes, kidneys, heart, limbs, and other vital organs.

It is the purpose of this discussion, however, to concern itself chiefly with the second objective named: that of the prevention and treatment of acidosis in diabetes.

Acidosis is a pathological condition in which the body fluids contain a relative excess of acidic ions and a relative deficiency of basic ions and is not peculiar to diabetes, being a result of a number of abnormal states, among which are:

1. Ingestion of acid salts in excess, as ammonium chloride;
2. Excessive muscular exercise with the accumulation of lactic acids;
3. Nephritis with the retention of acidic ions, particularly sulfate and phosphate;
4. Infectious disease, severe burns, general anesthesia, pregnancy, starvation, dehydration, and, lastly, the acidosis of diabetes which will henceforth be referred to as "ketosis" and which may occur in similar form following ether or chloroform anesthesia, or may be the result of the excessive metabolism of protein and fat in severe fevers. The ketosis of diabetes has certain specific peculiarities, however, any one of which, if not treated, eventuates in stupor and finally coma, the reason for which is unknown.

The fundamental characteristic of ketosis in diabetes is an accumulation in the blood of significant quantities of ketone bodies, namely, beta-hydroxibuturic acid, acetoacetic acid, and acetone, and results when there is improper utilization of sugar with a consequent increase in the metabolism of fats and proteins to meet the energy requirements of the body, with a resultant greater production of ketones by the liver for distribution to the tissues for complete combustion. Progressive, untreated ketosis in diabetes leads inevitably to death, and, I would suspect that it is detrimental to the entire diabetic state either in its low grade chronic or acute form.

PREVENTION

It is to be emphasized at this point that ketosis in diabetes is in all instances a preventable catastrophe, coming on relatively slowly and giving ample early signs of its presence, which can be easily detected by the alert physician and patient alike. Fortunately, there has developed a great awareness on the part of all today of diabetes and rarely does one encounter the tragedy of an undiagnosed case of diabetes which progresses to ketosis. All too often, however, a known diabetic under treatment will develop this complication as a result of either carelessness on the part of the physician or himself. Much has been said about the treatment of the dramatic ketonic coma, but I feel that perhaps not enough emphasis has been made upon the prevention of ketosis. Such prevention begins with the initial instruction of the diabetic patient. In recent years, I have become a very strict disciplinarian with diabetics and have abandoned the old optimistic statement that "You may live life as usual," but rather have indicated that strong disciplines and certain routines must be exercised. I believe in helping the patient to adopt a favorable attitude toward a new way of life; I think that he should be taught the principles as well as the techniques of diabetic control. I believe in the formal diet with meticulous instruction by a dietitian. I believe the patient should be thoroughly familiar with the various types of insulin and their specific timing. I further believe that a good diabetic patient should check a urine specimen for sugar 2 to 4 times a day (before each meal and bedtime) and should do a test for acetone in the urine at least once a day. The patient should be taught early concerning the possibility of ketosis and its dire consequence.

SUCCESSIVE STAGES

I like to think of diabetic ketosis as manifesting itself in three successive stages. Obviously, the earlier the detection, the easier it is, by proper treatment, to reverse this vicious process. These

stages are:

1. Preclinical phase in which the only manifestation is the presence of ketone bodies in the urine specimen which reflects, of course, the increase of these poisonous bodies in the blood stream. Ketonuria may be present with heavy glycosuria, or it may be present without sugar in the urine if the food intake has been inadequate. This stage may be transient or may be semichronic; is basically asymptomatic and may be picked up only by routine tests for ketones in the urine specimens.

2. Clinical ketosis, manifested by glycosuria, ketonuria, with gradually progressing symptoms of polydipsia, polyuria, with later abdominal cramping and vomiting and an objective appearance of dehydration and apathy.

3. Ketosis with stupor, or actual coma. The appearance of the patient in this instance is characteristic: there is usually deep Kussmaul breathing, soft eyeballs, flushed face, dehydration, characteristic odor of acetone on the breath, and a state of confused consciousness, varying from stupor to complete coma.

CAUSES

The causes of ketosis in diabetes are several and in general may be listed under the following headings:

1. Undiagnosed diabetes, particularly in infants and youth, in which either the patient has not been alerted to the preceding classic symptoms of diabetes, or the physician has failed to detect the presence of glycosuria on examination.
2. Poorly controlled diabetes:
   (1) Inadequate insulin dosage
   (2) Over-eating
3. Situations of stress:
   (1) Acute infections
   (2) Trauma
   (3) During and following surgery
   (4) Pregnancy—usually in the vomiting of the first trimester or during and following delivery
   (5) Profound emotional upsets
4. Starvation and/or dehydration:
   (1) Inadequate diet
   (2) Vomiting and/or diarrhea

All of us have seen the onset of ketosis under the above conditions. A few specific examples may be mentioned. Certainly, we are all familiar with the decrease in sensitivity to insulin during acute infections, particularly in youth, in which a patient doing well on 20 units of insulin may require three and four times that much per day. Certainly, trauma, such as severe injury with broken bones, will upset control conditions regardless of the food intake and insulin requirement may increase dramtically. All physicians should familiarize themselves with a technique for carrying the diabetic patient through surgery and pregnancy, and suggestions will be made later as to such. I have seen patients of all age groups, controlled well on varying doses of insulin, go into true diabetic ketosis because of emotional upsets. I recall such happening to a 19-year-old girl disturbed regarding a personal affair; another in which a 65-year-old woman became upset regarding the heart attack of her husband, and many others. During the past season the prevalent so-called "gastro-intestinal virus," resulting in vomiting and diarrhea, has caused the onset of ketosis in many, particularly in the age group below 15 years.

Whether or not ketosis will develop under these conditions appears to be unpredictable and inconsistent, and depends, apparently, on the lability of the diabetes in the individual patient. In general, erratic behavior of diabetes is to be expected in children and in youth; however, there are many so-called "brittle diabetics" in the upper age brackets and acidotic patients in the sixties are not at all uncommon. I would re-emphasize that the state of ketosis is preventable. The techniques for the testing of urine for sugar have become extremely simplified; the testing with the "Clinitest" tablet is being universally accepted, and the more recent advent of Lilly's so-called "Tes-Tape," and the Ames Company's "Clinistix", which may act as a substitute when necessity requires. All patients should be

equipped with a method of testing for ketone bodies in the urine and the Ames Company's so-called "Acetest" appears to be very dependable.

TREATMENT

If the above tests are done, any informed patient would be alerted to any upset in his pattern of diabetes control, and if there is some question as to the amount of insulin needed, I have found that the simple expedient of using so-called "insulin on demand" is well worth while. This is accomplished by simply the testing of a urine specimen, preferably a so-called "spot specimen," every three or four hours, and the use of regular, rapid-acting insulin as follows:

If the urine sugar is ++++	20 units
+++	15 units
++	10 units
+	5 units

In children, the insulin dosage may be reduced to a ratio of 16, 12, 8 and 4 units, respectively. This allows for a considerable flexibility in insulin dosage. If the food intake is inadequate and the ketone bodies are high in the urine specimen, then each time the urine specimen is checked, 4 to 6 ounces of orange juice, or a comparable sugary drink, may be given to the patient. Obviously, when the patient is on this type of control, he need not follow the usual formal diet, but may eat along throughout the day as his appetite and needs dictate.

I find that this principle of "insulin on demand" has served me most effectively also following surgical procedures and in the care of the diabetic patient during and following delivery. When food intake is inadequate or vomiting is present, it is necessary to give parenteral fluids and though there are no definite rules, in general, a vacoliter containing 50 grams of glucose may be covered by 15 to 20 units of regular insulin given hypodermically at the onset of the vacoliter. It is self-evident that no specific rules can be laid down, and a great deal of judgment must be exercised on the part of the physician. One rule which should always be remembered is that the diabetic patient, unlike the nondiabetic, cannot tolerate starvation but is obligated within every twenty-four hours to get a certain amount of fluids, sugar and electrolyes. All too often, a patient has decided that on a given day he will neither eat nor take insulin and if his diabetes is at all active, he stands a very good chance of being mildly acidotic before the day is out. When ketone bodies are present in the urine, liberal amounts of sugar are indicated and as long as this sugar is covered by adequate amounts of insulin, one need have little regard for blood sugars per se. It is obvious that to eliminate ketonemia, the body must have liberal amounts of sugar and water, covered by adequate amounts of insulin.

An alerted patient who picks up the early symptoms of ketosis may be successfully handled in the home as long as he is able to ingest an adequate amount of food, and is willing to put himself on the rather tedious regime described above. The reward, however, is great, inasmuch as ketosis in the first two phases may be reversed and the more dramatic coma with its necessity for hospital care avoided.

If, however, the ketosis proceeds to the point of intractable vomiting with dehydration, stupor or coma, the physician is faced with a dire medical emergency and the patient will require much more heroic treatment. This patient should be hospitalized immediately and general measures, such as warmth to the body (which may be in shock), a gastric lavage, if the vomiting is persistent, and the insertion of an indwelling catheter should be done. Constant or consistent nursing care and frequent observations by the physician are mandatory. Basically, the patient needs four things:

1. Fluids
2. Electrolyte control
3. Insulin
4. Usually glucose

Standard rules for the management of a patient with this illness are difficult to establish. Certainly the physician should be well versed in the underlying physio-

logical aspects and techniques of administration of the various components in the treatment. A few suggestions may be helpful:

1. *Fluids*: Intravenous fluids should be started and given continuously until the patient presents an appearance of hydration, until a favorable urinary output is accomplished, and until food and fluids may be taken by mouth without regurgitation. The amount of fluid will vary with the age, the size of the patient, the state of dehydration, and the intensity, of the ketosis, but in general may be 1000 cc. to 2000 cc. at a minimum up to 4000 cc., 5000 cc., and 6000 cc., or even more in extreme cases in twenty-four hours. Care should be taken not to overload the circulation of the older patient who may have potential heart disease.

2. *Electrolytes*: Sodium chloride is urgently needed and the first 2000 or 3000 cc. of fluid should and may be in saline. If further fluids are indicated, it may be well to alternate vacoliters between distilled water and saline. Avoidance of the over-use of saline with its consequent retention of fluids is to be kept in mind. Much has been said in recent years about the need for potassium in ketosis, and this is undoubtedly of great importance. I remember, in the past, patients who, to all purposes, were carefully and successfully treated in all traditional respects with a consequent return to normal levels of glucose and ketone bodies in the blood, died of potassium deficiency. It is to be remembered that at the onset of ketosis there is a hyperkalemia, but everything that is done to treat the acidotic state tends to literally wash potassium out of the system. It takes potassium to utilize glucose and insulin and certainly the relatively large amount of fluids given will both dilute and excrete potassium. Potassium blood levels or manifestations of potassium deficiencies by the electrocardiogram are difficult and expensive to do, and a very satisfactory rule to follow is that if the patient is unable to take some form of potassium by mouth within six hours after the onset of treatment, then potassium should be given parenterally. Fortunately, all foods are liberal in potassium content, particularly orange juice and broth, and if the patient is able to take even a small amount of either of these, the potassium problem is over. Potassium may also be given in a saturated solution of potassium chloride liberally by mouth, and there are prepared ampoules of potassium chloride which may be added in proper amount to vacoliters and given with complete safety. It is recommended that the rules for administration be obtained at the time of its use. Other electrolytes are disturbed in this condition but seem to adjust themselves and require no specific attention.

3. *Insulin*: Rapidly-acting regular insulin is to be used and the amount depends upon judgment, but the following rules are average:

(1) If the patient is in coma, 100 units of insulin hypodermically (50 units may be given hypodermically and 50 units placed in the vacoliter) and 50 units every hour until there is a clearing of ketone bodies in the urine.

(2) If the patient is stuporous but responsive, 75 units at the onset hypodermically and 30 to 40 units every hour until improvement is noted.

(3) If the patient presents cardinal signs of acidosis, is vomiting but alert, 50 units of insulin may be given at the onset hypodermically and 20 to 30 units every hour until improvement is noted.

In children the amount of insulin should be reduced, but approximately 30 to 40 units may be given at the onset and with the rules for "insulin on demand," for children give insulin every hour until improvement in ketone bodies is noted.

The physician must be alerted to that patient who is temporarily insensitive to insulin and may require exceedingly large doses. Though it may suffice to give the average patient in acidosis between 200 and 300 units of insulin in the first six to eight hours, there are some who will require 500 to 600 units, and there are

those on record who have required in excess of 1000 units. The failure of the patient to improve in the first two hours would indicate that a greater amount of insulin may be needed. When the patient begins to improve both clinically and by laboratory signs, the amount of insulin and the frequency of its administration may be decreased to two, later to three and four hours, with eventually "insulin on demand" being given for several days until the amount of long-acting insulin required has been reasonably established.

4. *Glucose*: There has been much controversy as to the need for glucose in the treatment of ketosis; those contending there was not only ample but a surplus of glucose in the liver, tissues and circulating blood and that only insulin was needed for its utilization, and those who maintain that such glucose was fixed and not available for usage. I was originally taught to use only saline solutions and did so for a number of years, but it is at present my firm conviction, based on the more successful treatment of diabetic ketosis for the last ten years, that glucose is not only desirable but necessary for the uneventful recovery of these patients. In the first vacoliter given, it need not be used; however, afterward I think it has certain advantages. There is no indication that high blood sugars are harmful and, in ketosis, certainly the objective in the treatment is to rid the blood stream of excessive ketone bodies. Ample available glucose and insulin are necessary to accomplish this. It is true that when glucose is given, more insulin is needed, but that is of little concern. Certainly, when glucose is given, there is rarely encountered the confusing and difficult problem of having ketone bodies persist with a normal to low blood sugar. Before I routinely started using glucose, at the terminal phase of treatment I have been embarrassed by having a patient both in hypoglycemia and ketosis! Excessive glucose is to be avoided, inasmuch as a type of diuresis which may reproduce dehydration has been noted. However, at least 150 grams of glucose may be used to advantage in the first six hours of treatment. I have had no experience in the treatment of ketosis with the use of intravenous fructose and have been advised by authorities that this practice is untried and unproven at this time.

SUMMARY

No attempt has been made in this discussion to go into the complex biochemical and physiological alterations in diabetic ketosis, but rather, by intent, emphasis has been placed on the clinical care by physician and patient which would tend to prevent this state, and the practical clinical application of the weapons we have for its treatment. Little has been said, on purpose, about complicated laboratory measures or studies in the treatment of ketosis. Obviously, an initial blood sugar level and CO_2 combining power is helpful, but to all practical purposes, careful attention to the ketones in the urine specimens and sound clinical judgment are adequate to reverse the ketotic state

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THE VALUE OF CARDIAC CATHETERIZATION IN DETERMINING THE NEED FOR VALVULOTOMY IN MITRAL STENOSIS

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The copious literature relating to the differentiating of mitral stenosis from mitral regurgitation attests to the importance of this problem. However, insufficient attention has been given to the need for recognition of which patients with mitral stenosis, and no significant mitral regurgitation, should have valvulotomy. The mitral stenotic, who is under forty years of age, has marked exertional dyspnea, perhaps a bout of pulmonary edema, a moderately enlarged heart, and right ventricular hypertrophy on electrocardiogram is an ideal candidate for surgery. The problem is quite different in the patient with the murmur of mitral

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stenosis who has noticed a moderate increase in fatigue or dyspnea on exertion, or a bout of coughing with a "cold", that produces hemoptysis, but shows no objective evidence of difficulty clearly produced by the mitral block. Here the electrocardiogram is normal, and the heart is not enlarged on fluoroscopy. The left atrium may not be large, and the right ventricle may show no more than a suggestion of enlargement.

In this situation, reliance upon the patient's symptoms is not always satisfactory. Difficulty is often encountered in evaluating the exertional incapacity, and in separating from it the emotional problems associated with this disease. Bronchitis and "colds", not related to myocardial insufficiency, may produce cough, with occasional hemoptysis, even in patients with mitral stenosis. Contrariwise, relatively severe mechanical block can elevate the pressures in the pulmonary system without causing overt congestive failure for a considerable time. Relatively severe mitral block and elevated pulmonary pressure are not necessarily associated with enlargement of the heart. Unless the mean pulmonary arterial pressure reaches 45 to 50 mm. Hg., right ventricular hypertrophy is not to be expected on the electrocardiogram. The intensity of the murmur of mitral stenosis offers no evidence of the severity of the mechanical block produced by that valve. It is often very loud with normal left atrial pressures and little stenosis, and may occasionally be inaudible with severe stenosis.

The hazard of procrastination before performing valvulotomy on patients with more than mild elevation of pulmonary pressures has been emphasized. The rapidity with which severe pulmonary edema may follow a bout of paroxysmal tachycardia, coughing from bronchitis or pneumonia, and other complicatioins, is well known. Weiss and Parker have convincingly demonstrated the celerity with which patients with severe mechanical block may develop actual arteriolar necrosis in the pulmonary vessels.

CASE REPORTS

Recently, this problem was encountered in five such patients seen at Touro Infirmary. The case histories are as follows:

Case No. I—This 27 year old white female had had a bout of joint pains at 4 years of age. At age 12 years, she had a second bout of joint pains and was told that her heart had been damaged. Her dyspnea began during this attack, and had grown progressively worse since that time. At age 17 years she had hemoptysis, productive of a teaspoonful of blood. For the past two years she has had orthopnea, requiring two pillows. She stated that exertional dyspnea had markedly increased in the past year, and she was not able to perform her housework any more. A trial of digitalis failed to improve her condition. She noticed precordial pain radiating down the left arm on exertion. She was extremely tense, and spoke at length of the many factors contributing to her nervousness.

At age 21 years the patient was delivered of a normal child by cesarian section and tubes were ligated because of her "cardiac condition".

On physical examination, blood pressure was 120/80. She was thin and appeared weak. Cardiac ausculation revealed a loud first heart sound, a grade III high pitched systolic murmur, and a grade III low pitched rumbling mitral diastolic murmur at the apex. No basal murmurs were heard. The lungs were clear. Fluoroscopy revealed slight left atrial enlargement, but there was no increase in right or left ventricular size. The electrocardiogram was normal. The pulmonary pressures and cardiac output at the time of catheterization were found to be entirely normal. Mitral valvulotomy was not advised because mechanical block at that valve was not causing the patient's symptoms.

Case No. II—This 37 year old white female had rheumatic fever at 8 years of age. She was told her heart was damaged and that she should avoid exercise. At that time, she noticed attacks characterized by rapid heart beating, shortness of breath, cough, and chest pain. She recovered uneventfully, and remained fit until age 24 years, when a severe bout of breathlessness, rapid heart, precordial pain, and coughing awakened her from a sound sleep. Subsequent similar attacks lasted from one to four hours, and were associated with extreme nervousness. In the past two years these attacks have been precipitated by the exercise of climbing stairs or walking in the fields. During the past six months, her exercise tolerance has become more limited, and she has not been able to perform housework. There has been no pedal edema, hemoptysis, or other attacks of rheumatic fever. She had received a trial of digitalis without benefit and was not receiving that drug when seen at Touro Infirmary.

Physical examination revealed a rather tense, slender woman. Blood pressure was 100/60. The lungs were clear. The heart was not enlarged. There was a grade III rumbling diastolic and a grade I high pitched systolic murmur at the apex. The apical first sound was accentuated. The liver was not enlarged. Fluoroscopy revealed slight enlargement of the left atrium, but the right and left ventricles were normal. The electrocardiogram was normal. The cardiac catheterization revealed normal pressures and outputs, both at rest and exercise. It was felt that mitral valvulotomy was not indicated. This patient has improved greatly with psychotherapy.

Case No. III—A 21 year old white female complained of extreme fatigue on doing housework. She had had rheumatic heart disease at 5½ years of age, and again at 7 years of age. Following the latter illness she was kept at bed rest for thirteen months and told that she had a very bad heart. A third attack of acute rheumatic fever followed at age 15 years. At this time she first experienced hemoptysis. She was forbidden any form of exercise during her school career. At age 17 years when six months pregnant, she developed pedal edema, orthopnea, dyspnea, and hemoptysis. She was digitalized, remained at bed rest, and was given a salt poor diet. She had a normal uneventful delivery, which was followed by recovery from heart failure. Within three months of delivery, she suffered another bout of acute rheumatic fever. At age 19 years the patient was pregnant for the second time. She was closely observed in the prenatal period and remained largely at bed rest. The delivery was uneventful. In the past two years she has noticed progressive decline in exercise tolerance. On admission she stated that the exertion of bathing the children, climbing stairs, and cleaning house was too great to permit these activities. She has had no orthopnea or paroxysmal dyspnea.

On examination the blood pressure was 100/80. The lungs were clear. The heart was not enlarged. There was a systolic and diastolic thrill at the apex, and a shock with the pulmonary second sound. At the apex, a loud first sound was followed by a grade III high pitched systolic murmur, a faint second sound, and a grade III rumbling diastolic murmur. There was a presystolic accentuation of the diastolic murmur. There were no murmurs heard at the base. The liver was not enlarged, and the legs were not edematous.

Fluoroscopy revealed questionable right ventricular enlargement in the left oblique. The heart was not enlarged in the P. A. view. The left atrium was not enlarged. The electrocardiogram suggested slight delay in conduction through the right bundle, but was otherwise normal.

At catheterization the pressures were found to be about the upper limits of normal. After exercise which was sufficient to increase her minute ventilation from 4 liters/minute to 21 liters/minute, there was a doubling of her cardiac output, but no significant alteration of the pressures. Surgery was not advised for this patient. Although her mitral valve area may be considerably decreased, it is still not decreased enough to explain the severity of her symptoms, or to elevate her pulmonary pressures on exercise.

Case No. IV—This 40 year old white female suffered a bout of tonsillitis followed by joint pains at age 24 years. At that time she was told that her heart had been damaged. At age 36 she had a bout of pneumonia and was hospitalized for one week. At age 39 years she again had a bout of pneumonia and was advised to take digitalis. She found the latter drug of no help. Since that time she has had progressively increasing dyspnea on exertion and has been unable to climb 20 steps. Two weeks before admission she developed a "cold" with a hacking cough. During one of the coughing attacks she had hemoptysis productive of 10 to 20 cc. of bright red blood. She denied orthopnea and pedal edema and, until admission to hospital, had carried on daily as a saleswoman in a shoe store.

Physical examination revealed a slender, middle aged female with blood pressure of 120/80. Cardiac auscultation revealed a loud first sound, and a grade III rumbling diastolic murmur with presystolic accentuation. The lungs were clear. The liver was not large. Cardiac fluoroscopy revealed moderate enlargement of the pulmonary conus, but no left atrial enlargement. The right ventricle appeared slightly enlarged, but the over-all heart size in the A.-P. projection was not enlarged. The electrocardiogram was normal. Cardiac catheterization revealed moderately elevated pulmonary arterial wedge pressures at rest, which rose sharply on mild exercise. At commissurotomy the mitral valve was found to be calcified and stenosed. It failed to admit the tip of the surgeon's finger.

Case No. V—This 21 year old white female had had rheumatic fever at 4 years of age and again at 17 years of age. She was apparently well until she became pregnant at 19 years of age. She lost weight and became increasingly dyspneic toward the seventh month. At that time she was told that she had rheumatic heart disease. Delivery was uneventful. The following year she again became pregnant and, at five months, she noticed severe dyspnea. At the sixth month a spontaneous abortion occurred. Since that time the patient has felt fit, except that she tired somewhat on climbing stairs or doing severe exercise. She had no orthopnea, paroxysmal nocturnal dyspnea, pedal edema, or hemoptysis. The patient was told that she should have further evaluation of her heart status before becoming pregnant again.

Physical examination revealed a blood pressure of 110/70. The lungs were clear. The heart was not enlarged. On auscultation, there was a grade IV rumbling diastolic murmur at the apex with a presystolic accentuation. There were no other murmurs. The cardiac fluoroscopy revealed moderate pulmonary conus enlargement and the right ventricle was questionably enlarged. The electrocardiogram was normal. Cardiac catheterization revealed markedly elevated pressures. At commissurotomy the mitral valve failed to admit the finger tip.

Each had a history of moderate exertional dyspnea which had become worse in the past few months. Two had had hemoptysis. All had the murmur of mitral stenosis. Two had a mitral regurgitation murmur in addition, but proved to have normal pressures at catheterization. However, there was no cardiac enlargement on fluoroscopy, and the electrocardiograms were normal (Figs. 1, 2, 3). In each instance, data obtained at cardiac catheterization was of distinct value in determining if mitral valvulotomy were needed. (Fig. 4). In three the pressures were normal, both at rest and exercise. The increased cardiac output per 100 cc. increase in oxygen consumption was well within normal range. Marked valve obstruction could not have accounted for the symptoms, and relief by mitral valve surgery was not to be expected. The fourth patient, at rest, had moderately elevated pressure in the pulmonary artery. The pulmonary wedge pressure, which is a portrayal of the left atrial pressure, was markedly elevated. On mild exercise her cardiac output doubled, an increase within the normal range per 100 cc. increase in ovygen consumption; however, she accomplished this feat at an expense of almost doubling her pulmonary artery pressure. The pulmonary wedge pressure became

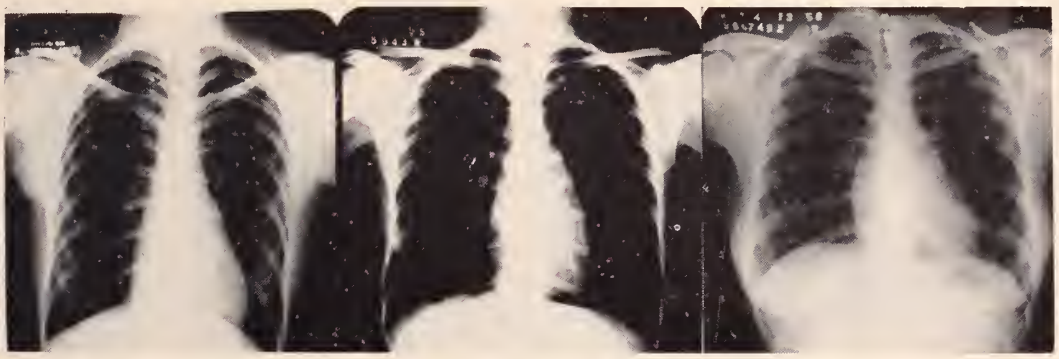


Figure 1. Cases I, II, and III with normal pulmonary pressure.



Figure 2. Cases IV and V with pulmonary hypertension.

elevated to the point of exceeding the colloidal osmotic pressure of blood. This is an important factor in production of pulmonary edema. The fifth patient had marked elevation of pulmonary arterial pressure at rest. Her pulmonary wedge pressure equalled the colloidal osmotic pressure of blood. Exercise was not attempted.

The first three patients have improved considerably on reassurance and psychotherapy. The last two patients were found to have tight mitral stenosis at surgery. (Dr. Dennis Rosenberg, Department of Thoracic Surgery) After six months, one of the latter two patients has resumed full activity with excellent improvement. The other patient is still in the early postoperative status.

In patients with symptoms which may be from mitral stenosis, but in whom the fluoroscopy and electrocardiogram fail to give objective evidence of the severity of the mechanical block produced by the mitral valve, cardiac catheterization will offer considerably more information upon which to base a decision regarding the need for valvulotomy. Critical levels of pulmonary artery and wedge pressure elevation, above which one should advise valvulotomy, cannot be definitely established. It is certain, however, that, given these conditions, an increase in the pulmonary artery pressure of three to four times normal, a marked rise on exercise, and a pulmonary wedge pressure that approaches the colloidal osmotic pressure of blood, indicates that ameloriation of symptoms may be anticipated from an adequate valvulotomy.

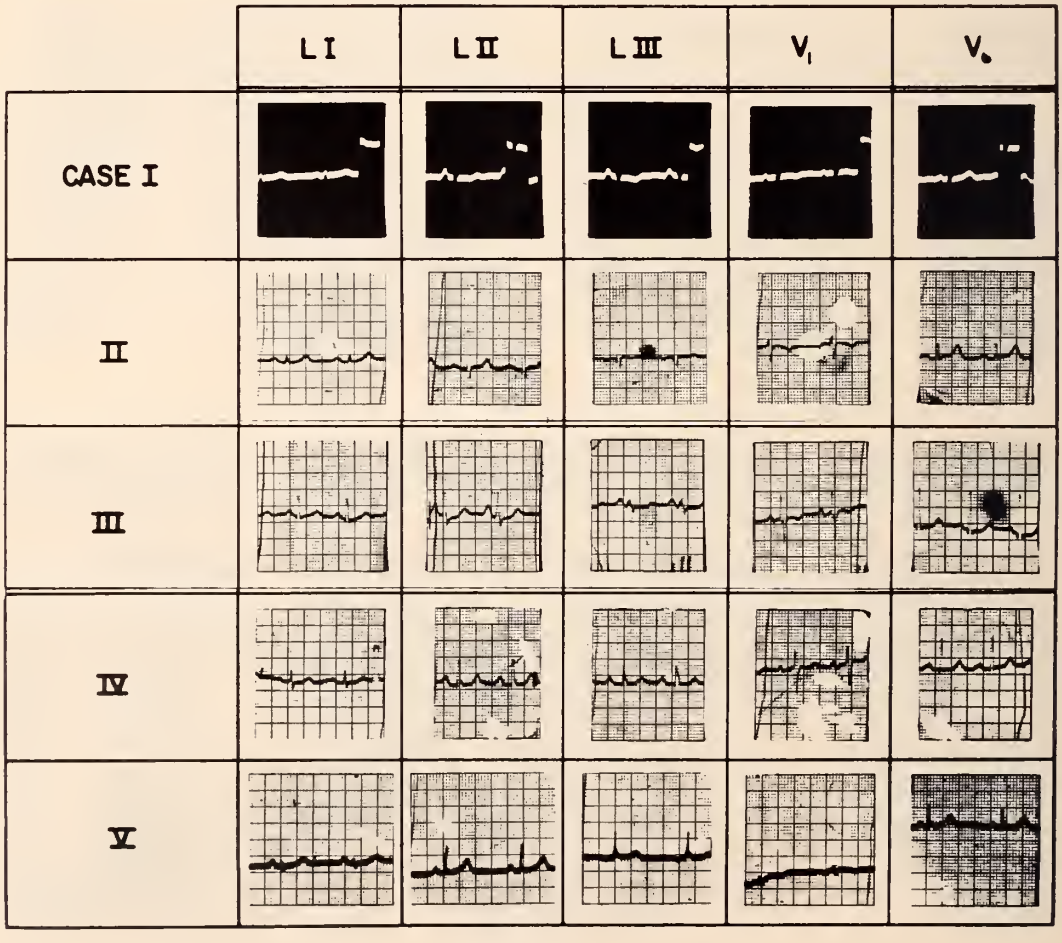


Figure 3.

SUMMARY

1. Cardiac catheterization is a valuable adjunct in assessing the severity of mitral stenosis in patients with this murmur and suggestive symptoms, but in whom the electrocardiogram is normal and the heart is not enlarged.

2. Five cases are presented. Two had considerable elevation of pulmonary artery and wedge pressure and a tight valve at surgery. Three had normal pressures which indicated that no severe stenosis was present. Surgery was not advised in these latter patients.

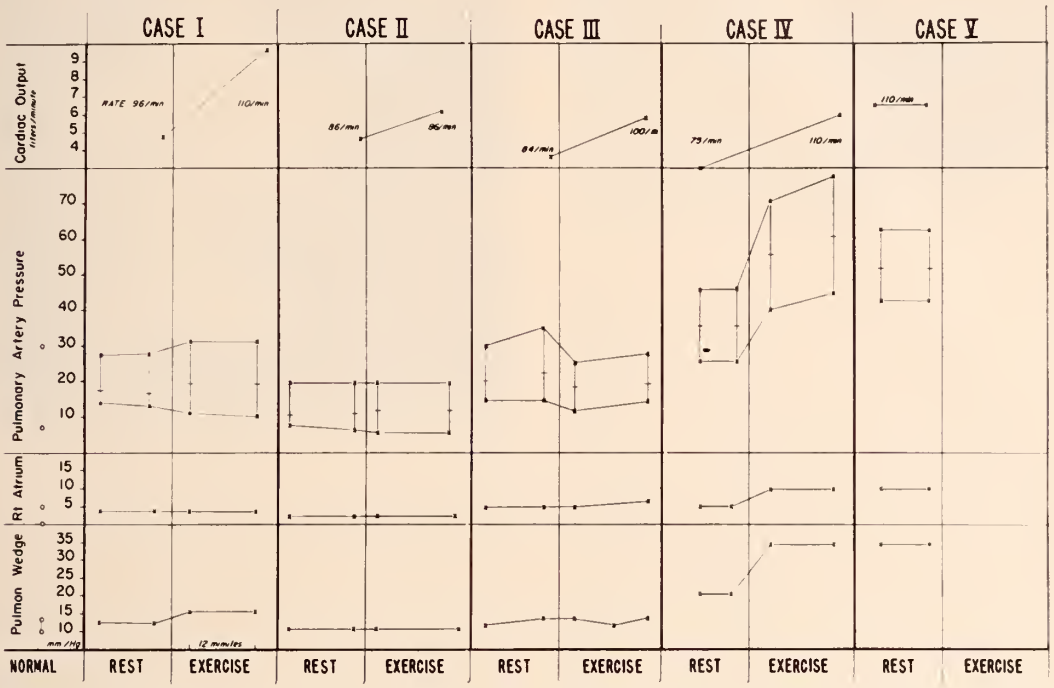


Figure 4. Data in cases I, II, and III indicate normal pulmonary artery and wedge pressure, normal right atrial pressure, without elevation on exercise. Case IV shows moderate elevation of pressures at rest, a marked rise on exercise. Case V shows marked elevation of pressures at rest. Cardiac output increases in all cases on exercise.

SURGICAL ASPECTS OF PANCREATIC DISEASE *

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The four affections of the pancreas generally amenable to surgical treatment are: certain congenital anomalies, injuries due to violence, inflammatory disease, and cancer. Congenital anomalies and trauma of the pancreas do not present difficult diagnostic problems, and operative intervention, although at times technically hazardous, is generally attended by satisfactory results. The surgical treatment, however, of patients with inflammatory or neoplastic disease of this organ is controversial and the accomplishments all too often disappointing. The causes for these latter therapeutic dilemmas are apparent; the etiology of pancreatitis continues in doubt while the early diagnosis of pancreatic cancer is rarely achieved.

CONGENITAL ANOMALIES

Ectopic pancreatic tissue may occur in the wall of the stomach, of the duodenum, of the gallbladder, and of the jejunum. (Figure 1) Generally these islands of misplaced gland are not troublesome though occasionally ulceration of the enteric mu-

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Figure 1. Aberrant island of normal pancreas in the stomach.

cosa over them does occur.[1] These may produce symptoms of peptic ulcer and have been described as a cause of upper gastrointestinal hemorrhage. More usually, however, ectopia of the pancreas does not produce specific symptoms and is only discovered during a roentgen survey of the upper gastrointestinal tract when this is performed for one vague digestive complaint or another. Once discovered, pancreatic ectopia cannot be surely differentiated from a benign or malignant tumor and is summarily removed. Not the least interesting aspect of this relatively rare congenital anomaly is its occasional involvement in an acute or chronic inflammatory process. Those discovering this unusual circumstance are quick to challenge the common channel—biliary reflex concept of the etiology of pancreatitis.

Another congenital anomaly is annular pancreas.[2-5] Here the ventral anlage of the developing pancreas fails to fuse with the dorsal anlage and partially or completely encircles the first or second part of the duodenum. Needless to say, this congenital defect can cause all degrees of duodenal obstruction. An annular pancreas may occlude the duodenum of the newborn (Figure 2) or may only become apparent in later life as chronic duodenal obstruction. In either instance, surgical intervention is necessary. Resection of the stenosing ring of pancreas and gastrojejunostomy have each had their advocates. Gross,[6] however, who has had wide

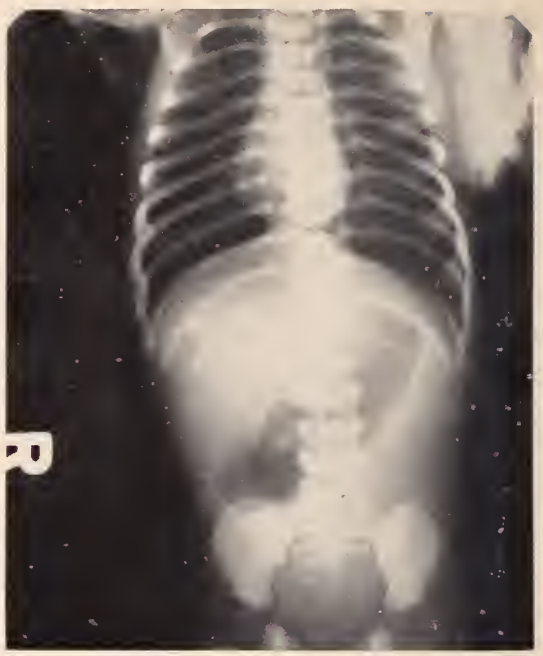


Figure 2. Complete duodenal obstruction in a newborn infant due to annular pancreas. This was completely relieved by a posterior duodenojejunostomy. (Reproduced with permission from New Eng. J. Med. 251:191-193, 1954)[3]

experience with this congenital defect, believes that it is best treated by side-to-side duodenojejunostomy. Attempts to resect the pancreatic ring have been associated with troublesome pancreatic and even fatal duodenal fistulae. When the ring is incompletely removed, recurrent duodenal obstruction makes its appearance. Gastrojejunostomy is, of course, always prone to stomal ulceration.

INJURY BY VIOLENCE

The pancreas may be injured by an endless variety of direct or indirect violence. The gland may be traversed or shattered by high velocity missiles, it may be squashed against the vertebral column by nonpenetrating force, or it may be pierced or severed by stab or knife wounds. Fortunately, however, the pancreas is not commonly prone to injury for it lies deeply in the upper abdomen well protected by overhanging rib margins. When pancreatic injury due to violence does occur, however, immediate operation becomes imperative. Of help in deciding upon exploratory celiotomy in closed injuries to the pancreas is abdominal para-

centesis. A high amylase content in the withdrawn fluid is diagnostic of injury to the pancreas. Two general rules of operative management are important: badly damaged or ischemic pancreatic tissue should be removed and free drainage to the site of injury established. Persistent bleeding and massive retroperitoneal hematomas are commonly associated with pancreatic trauma. These must be dealt with effectively by ligature, for a gauze pack has no place in the control of hemorrhage in the upper abdomen. Needless to say, nonabsorbable suture material such as cotton or silk should always be used in operative intervention upon the pancreas.

A fistula almost inevitably develops following drainage of the site of extensive pancreatic injury. Frequently, patience over a period of months is required to observe spontaneous closure. Operations performed early for post-traumatic fistulae are neither wise nor necessary. The formation of an almost endless variety of pseudocysts is a well recognized late complication of injury of the pancreas.[7] Eradication of such cysts as these may sorely tax the judgement, ingenuity, and skill of accomplished surgeons. Excision of these cysts is of course desirable, but more often than not, the safety of the patient is best served by more conservative measures such as marsupialization or even repeated external drainage. Internal drainage, by surgically creating a fistula between the cyst and the stomach or an adjacent loop of small intestine, is a useful procedure and has earned a well deserved place in the management of pancreatic pseudocysts. Altogether, then, the surgical treatment of congenital anomalies and of injuries and their complications is a satisfactory, though offtimes difficult, area of operative effort.

POSSIBLE ETIOLOGIES OF PANCREATITIS

In turning now to pancreatitis, a group of complex ills both acute and chronic is encountered. These may be difficult indeed to manage successfully by either operative or nonoperative measures. Primarily responsible for these many difficulties are the several etiologies which seem to be concerned and which are not at all clearly understood. Nevertheless, significant progress has been made in recent years toward a better understanding of the many complexities involved. Those willing to accept the responsibility of treating unfortunate patients with pancreatitis are in a better position than ever before to provide at least a reasonable therapeutic program for this troublesome clinical entity.

A close relationship between pancreatitis and chronic biliary tract disease has always been appreciated. The precise cause and effect, however, has never been surely established. For instance, it is a time-worn observation that at emergent or elective operations for calculus disease of the biliary tract, the pancreas is often thickened, indurated, and obviously the site of a chronic inflammatory process. This association has been far too common to be ascribed to chance. Furthermore, after correction of the biliary tract disease, it is well known that the associated pancreatitis may subside never to be heard from again. Conversely, when it was more common to operate upon patients with acute pancreatitis than it is today, a large distended and tense gallbladder — with or without calculi — was such a common finding that cholescystostomy was accepted as an important surgical therapy for acute pancreatitis. The evidence, circumstantial as it may be, is too strong to doubt but that an important relationship exists between biliary tract disease and the inflammatory diseases of the pancreas.

In addition to the circumstantial if not etiological relationships between biliary tract and pancreatic disease, there is reason to believe today that a similar relationship may exist between pancreatitis and duodenal ulcer. The most common manifestation of this association is, of course, the posterior duodenal ulcer penetrating into the head of the pancreas. Here, during the acute phase of the ulcer, the head of the pancreas is indurated and

duct obstruction may be sufficient to produce elevations in serum amylase. In addition to this obvious association, patients with chronic duodenal ulcer may, too, manifest signs and symptoms of recurrent pancreatitis. Fortunately, correction of the ulcer is generally followed by subsidence of the pancreatitis.

Many years ago a small stone impacted in the ampulla of Vater together with a demonstrated common channel between the common and pancreatic ducts, convinced Eugene Opie[8] that pancreatitis was due to reflux of bile up the pancreatic duct. This chance observation in the autopsy room prompted many to produce in the dog an experimental form of pancreatitis by injecting the animal's own bile into his pancreas. So closely does the pancreatitis produced under these circumstances resemble that seen in man, that reflux of bile up the pancreatic ducts has long enjoyed popularity as the specific cause of pancreatitis. Even more credence was ascribed to this belief when numerous anatomists demonstrated that in from 40 to 60 per cent of humans, a common channel actually exists between the distal common and proximal pancreatic ducts. More recently Mulholland and Doubilet[9, 10] have provided evidence that spasm of the sphincter of Oddi may too cause bile to enter the pancreatic drainage system under pressure. Quite naturally they added division of the sphincter to eradication of biliary tract disease as a logical additional treatment for pancreatitis. Each of these surgical therapies has had its successes in controlling early pancreatitis —each its failures. With distressing frequency, however, a postoperative month or two passes and, now in the absence of either demonstrable biliary tract disease or a competent sphincter, the patient returns in a devastating attack of acute pancreatitis. It is, of course, at this point that many additional and perhaps extraneous factors enter the clinical picture. Patients with recurring pancreatitis notoriously take alcohol in excess. In addition, time and time again the only surcease from pain available to them has been narcotics. If not actual narcotic addicts, many are indeed habitual users of a wide variety of pain-relieving drugs. Furthermore many of these individuals manifest serious neurotic if not actual psychotic traits. The scene is set therefore to provide an almost continuous state of pancreatic stimulation. Alcohol is an excellent pancreatic secretogogue; morphine and like drugs are well known for their ability to obstruct pancreatic flow; vagal stimulation promotes excessive secretion of pancreatic juice. In such a setting as this every effort can be made to persuade the patient to desist from alcohol, to stop taking drugs, and to use anticholinergic agents. These efforts however, are largely unsuccessful in the face of continuing attacks of pancreatitis and the question arises as to what surgical measures have to offer such individuals.

Out of the mass of conflicting evidence —both clinical and laboratory—which is available for study, one inescapable conviction emerges, namely, that continuing pancreatitis is due to partial or complete obstruction of the pancreatic drainage system. Just as common duct obstruction ultimately destroys the liver, so will pancreatic duct obstruction destroy the pancreas. The only difference is that the latter is more violent, precipitous, and demoralizing. In the treatment, therefore, of the patient with recurrent pancreatitis, the surgeon must ever seek to accomplish one objective—relief of obstruction to pancreatic drainage. In seeking to achieve this objective a threefold obligation is assumed; first, to manage acute pancreatitis properly; second, to halt the relentless course of progressive and recurrent pancreatitis; and third, to undertake boldly the salvage of patients with continuous pain, narcotic addiction, severe metabolic disturbances, and emaciation secondary to advanced fibrocalcific pancreatitis.

MANAGEMENT OF ACUTE PANCREATITIS

With the advent of acurate tests of increased serum amylase activity, it became possible to establish the diagnosis of acute pancreatitis without recourse to

operation. There can be little doubt today but that the mortality of acute pancreatitis has been lowered appreciably by nonoperative management. Furthermore, medicine and surgery now have at their disposal effective measures for ameliorating the distressing manifestations of the acute attack. Constant gastric suction, atropine, banthine intravenously, and perhaps diamox (acetazioleamide) are effective measures for decreasing pancreatic secretion and placing the pancreas at rest. Although the use of morphine and its derivatives has become an anathema in the treatment of pancreatitis, it must be recalled that demerol (meperidine hydrochloride) and other morphine substitutes also produce spasm of the sphincter of Oddi. All of these drugs should, of course, be avoided if possible but not to the point where the patient is in near shock due to overwhelming barrages of painful stimuli. Even today, morphine is probably the most effective means of relieving the catastrophic pain of acute pancreatitis. At times sympathetic or epidural block may effectively assist in controlling pain. Antibiotics should be administered throughout an acute attack for there is reasonable evidence that if metastatic infection is not an actual cause of pancreatitis, it may play an important secondary role. Needless to say strict attention must be accorded water and electrolyte balance. Ionizable calcium may fall to low levels if any extensive degree of fat necrosis occurs. It is easily replaced by intravenous calcium gluconate. Deficits in blood and plasma volume secondary to peritonitis must too be corrected either by blood, plasma, or serum albumin in adequate amounts. An acute diabetes is not unusual and is easily controlled by insulin and glucose. By careful attention to details such as these, the patient can generally be tided through his acute attack with success. Only when the acute attack relentlessly progresses to pancreatic necrosis or abscess formation does emergent operative intervention become necessary. Continued fever, a rapid pulse, a rising white count, and signs of localizing sepsis in the upper abdomen must alert physician and surgeon to the possible development of an abscess which will certainly prove fatal if not adequately drained in time.

In the past, patients who have recovered from an acute attack of pancreatitis have been permitted to go their way, both the patient and physician taking refuge in the hope that further attacks will not occur. This is a false hope indeed, and not only the first attack, but succeeding attacks as well, of acute pancreatitis should alert both the patient and his physician to the existence of a serious underlying defect which must be corrected if further attacks are to be avoided. The time may well come when one attack of acute pancreatitis, and most particularly several attacks, will be regarded as an urgent reason for early surgical intervention. If the premise that all pancreatitis is due to one form or another of obstruction to pancreatic drainage be ultimately proved correct, the time to approach correction is early. Only by so doing may the late stages of the disease hope to be avoided. Extensive fibrocalcific pancreatitis is an irreversible and probably a self-perpetuating process subject to little more than extirpation for its cure.

THERAPY OF OBSTRUCTION TO PANCREATIC DRAINAGE

At this point it might not be amiss to comment briefly upon the diagnosis of acute or chronic obstruction to pancreatic drainage. There is little doubt but that acute pancreatitis is more common than is generally believed. The reason the diagnosis is not made more often is probably because the patients are not seen early enough for the physician to obtain evidence of elevated serum or urinary enzyme activity. In spite of an enormous amount of fine laboratory investigation of pancreatic malfunction, the only really good way of establishing a diagnosis of early pancreatitis is to think of the possibility and then to pursue the patient until positive evidence of an elevated serum amylase is obtained. Particularly

since the introduction of Fishman and Doubilet's [11] rapid test for elevated serum amylase, there is little excuse for any hospital failing to offer this service.

Once the diagnosis of pancreatitis has been established, physician and surgeon alike should have an orderly and logical approach clearly in mind as they proceed to document the cause and undertake therapy. The first steps are obvious: the detection and elimination of chronic biliary tract disease or duodenal ulceration if these be found to exist.

The demonstration, by cholecystography or cholangiography, of chronic cholecystitis and cholelithiasis or choldedocholithiasis should be followed without delay by cholecystectomy and exploration of the common duct. If a peptic ulcer be found on roentgen examination of the stomach or duodenum, nonoperative methods of treatment should be instituted promptly. Should complete healing fail to occur in a reasonable period of time, surgical intervention should not be delayed. A normal biliary and gastrointestinal tract, however, should not mitigate against exploratory celiotomy and operative cholangiography as soon as the acute attack has completely subsided. If reflux of dye up the pancreatic duct is demonstrated, a clear indication for sphincterotomy is at hand. Whether or not a common channel and biliary reflux is demonstrated, the surgeon must not abandon his efforts to prove that the pancreatic ducts are patent. This can only be accomplished today by transduodenal pancreatography. *Only* if the biliary tract is normal, *only* if bile does not gain access to the pancreatic ducts, and *only* if the pancreatogram is normal,[12] has the patient been given every assurance that his biliary and pancreatic drainage systems are normal. Under such circumstances as these, I believe that hemigastrectomy and vagotomy are justified as a definitive effort to protect the patient from further attacks of pancreatitis. Hemigastrectomy and vagotomy offer physiological protection against excessive pancreatic stimulation. If free drainage of the gland exists, this operation is certainly reasonable and gives hope of important accomplishment.

What, however, if pancreatography has demonstrated an obstruction in the main pancreatic duct. Under this circumstance the proper course to follow may be obscure indeed. Several possible avenues of approach present themselves for consideration. Simple dilatation alone as advocated by Warren [13] appears legitimate in the absence of advanced fibrosis and calcification of the gland. Particularly is this defensible if the stricture yields readily to gentle bouginage and a free flow of clear pancreatic juice is promptly obtained. The conventional arguments against dilatation of any stricture can be advanced, however, and distal pancreatectomy or pancreaticojejunostomy advocated as the only reasonable way of permanently relieving obstruction of the pancreatic duct. If, on the other hand, the pancreas in question is the site of advanced fibrosis and calcification, pancreatectomy distal to the point of stricture is the only logical course to follow. (Figure 3) The most common site of stricture unfortunately lies within a centimeter or

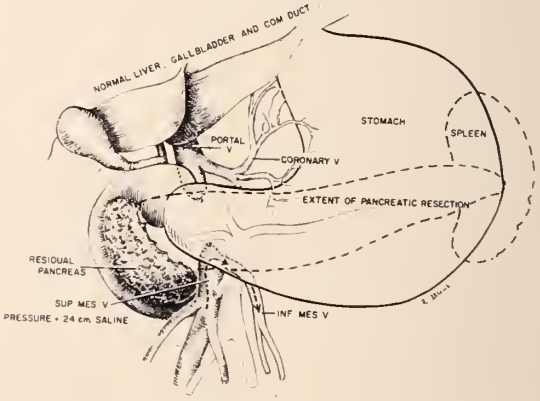


Figure 3. This patient, a 36-year old housewife, had had innumerable attacks of acute pancreatitis over about a 10-year period. At operation the entire body and tail of her gland was the site of chronic inflammatory process with calcification. Pancreatography readily demonstrated a complete block of the main pancreatic duct 2.5 cm. above the papilla of Vater. The head and uncinate process were relatively normal. Subtotal pancreatectomy distal to the block was performed. The patient has gained 60 pounds and has been entirely well for three years.

so of the ampulla of Vater. This may mean that the entire gland is involved. Again, if the process in the pancreas is early and has not progressed to fibrosis and calcification, distal pancreaticojejunostomy as devised by DuVal[14] may suffice. (Figure 4) If, however, the entire gland is fibrotic and calcified, total pancreaticoduodenectomy must be seriously considered. There can, of course, be little doubt but that total pancreatectomy is undesirable. (Figure 5) In facing this decision, it must ever be borne in mind that the alternative may well be a psychonutritional cripple addicted to narcotics and alcohol. Mention, of course, must be made of choledochojejunostomy as advocated by Bowers.[15] The only logical indication for this procedure alone is fibrotic stenosis of the intrapancreatic portion of the common duct without concomitant obstruction of the pancreatic duct. The assumption that choledochojejunostomy or sphincterotomy can alter the course of pancreatitis due to advanced pancreatic duct obstruction is hardly tenable.

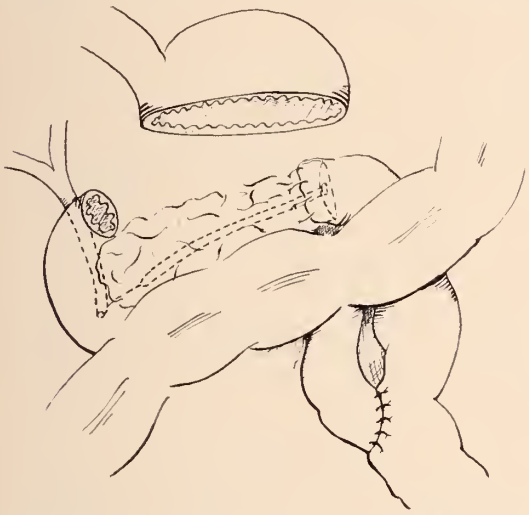


Figure 4. *Distal Pancreaticojejunostomy.* This operation, relatively new to the field of surgery for chronic relapsing pancreatitis, requires as its indication obstruction to the pancreatic duct near the head of the gland. The duct should, of course, be free of interruption distal to the point of obstruction before such an operation as this is undertaken. As yet experience with distal pancreaticojejunostomy is too limited to provide final judgement concerning its usefulness.



Figure 5. Choledochogram demonstrating a dilated intrahepatic biliary drainage system due to chronic relapsing pancreatitis. In addition, reflux of dye up the pancreatic duct for a distance of 2.0 cm. is clearly shown. It is logical to assume that this patient's pancreatitis was initiated by biliary reflux due to a common channel between her terminal choledochus and pancreatic duct. Because of widespread pancreatitis and obstruction throughout her entire pancreatic duct, a total pancreatectomy was performed with complete relief of symptoms.

PANCREATITIS AS A POSTOPERATIVE COMPLICATION

During the past ten years or so, surgeons have become increasingly aware of acute pancreatitis as a postoperative complication of major surgical procedures. In some instances this untoward event has been related directly to the operation itself. For instance Dunphy[16] has shown conclusively that injury to the pancreatic ducts during a difficult gastrectomy may be followed by a particularly virulent form of pancreatitis. On the other hand, acute pancreatitis has been reported following operations in the lower abdomen as well as after surgical procedures performed outside the abdominal cavity. In Figure 6 is outlined the clinical course of a patient who experienced a severe attack of acute pancreatitis on her sixteenth postoperative day after an uneventful gastrectomy for a benign duodenal ulcer. Within a few days her pancreatitis subsided only to be followed by acute gan-

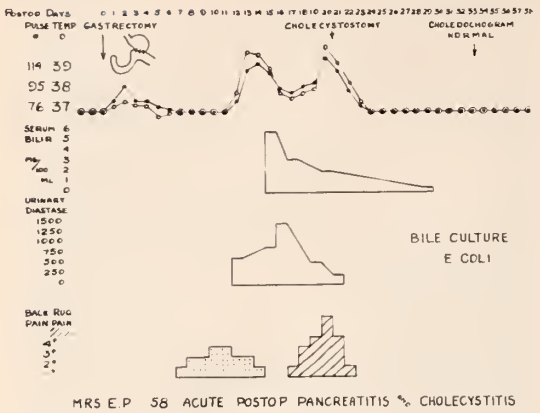


Figure 6. Graphic representation of the course of a 58-year old female who suffered an attack of acute pancreatitis about two weeks after a presumably uneventful gastrectomy for duodenal ulcer. This complication was further compounded by the development of acute gangrenous cholecystitis without calculus disease of the biliary tract. The etiologies of these complications are not known. This chart is presented as a reminder of the intimate, though not clearly understood, relationship which exists between duodenal ulcer, the biliary tract and the pancreas.

grenous cholecystitis. This required drainage. Stones were not present. Recovery of the patient was complete and postoperative choledochogram failed to reveal any evidence of calculus disease of the biliary tract, nor did the contrast medium reflux up the pancreatic ducts. The pathological mechanisms responsible for such a postoperative catastrophe as this were not at all clear.

CONSERVATIVE MEASURES IN RELIEF OF PAIN

These paragraphs on the surgical aspects of pancreatitis should not be concluded without one or two additional comments. In the first place, it is probable that in some patients pancreatitis may pursue a relatively benign course without the devastating pain so usually associated with the disease. Under these circumstances it is obvious that the extensive and ofttimes drastic surgical steps which have been outlined would hardly be applicable. The primary purpose of surgical intervention is the relief of pain. To be sure, prevention of progressive pancreatic destruction is desirable, but the metabolic disturbances associated with this can be controlled not unsuccessfully by insulin and pancreatic extracts. In the second place, various forms of denervation of the pancreas have been advocated purely for the control of pain. These have had their successes to be sure, but in addition to exposing the patient to the risk of becoming unable to appreciate the onset of a severe intra-abdominal catastrophe, the results are impermanent and capricious. If operations are to be done to control pancreatitis, a direct attack upon the gland itself seems more reasonable at this time. Last but not least, some recognition must be given the fact that pancreatitis as an entity differs from one hospital population to another. It is failure to appreciate this that has given rise to much of the confusion which is prevalent today concerning the incidence and prevalence of the problem of pancreatitis. Furthermore, medicine and surgery have been prone to oversimplify surgical management. For instance, sphincterotomy undoubtedly has its place but is probably not a simple surgical cure-all for the disease.

PANCREATIC NEOPLASMS

From the surgical point of view, cancer of the ampulla of Vater, of the duodenum, and of the head of the pancreas may be grouped together for their cure is amenable to the same operation—pancreaticoduodenectomy. In considering preoperative diagnosis, mortality rate, and rate of salvage, however, malignant tumors of the papilla and duodenum must be held distinct from pancreatic cancer. The reasons for separation are clear—papillary and duodenal lesions can be detected early, and appear to be of a lower grade malignancy than are tumors of the pancreas. Sudden jaundice, anorexia, pain, stools persistently positive for blood, and an enlarged gallbladder lend encouraging assurance to the surgeon that his patient is harboring an operable neoplasm of the ampulla of Vater. Under these circumstances, surgical mortality is low and long-term survivors numerous.

In considering primary pancreatic neoplasia, brief mention must be made of the rarely encountered cystadenomas. These

large cystic structures differ from pseudocysts in that they are lined by epithelium, do not follow trauma, and may reach prodigous size before coming to the attention of either patient or physician. Even heroic efforts should be made to remove these tumors completely for they are prone to undergo malignant degeneration, if, in fact, they are not primarily malignant.

Cancer primary in pancreatic parenchyma permits no such optimism as in tumors of the papilla. The diagnosis of pancreatic cancer is still long delayed. Tumors of the body and tail are almost never discovered in an operable stage, while jaundice must almost inevitably make its appearance before patients with cancer of the head of the organ are seriously considered for operation. Nor are the surgeon's difficulties over when he finally decides upon exploratory celiotomy. When operable, these tumors are small and lie buried deeply in pancreatic tissue. Incisional biopsy is notoriously unsuccessful, and if successful, may prejudice against cure by disseminating viable cancer cells throughout the upper peritoneal cavity and abdominal incision. Under all save exceptional circumstances, the surgeon must boldly assume the role of an accomplished gross pathologist. In the absence of local or distant metastases and with the conviction that biliary obstruction is in fact due to pancreatic cancer, the surgeon must embark upon a hazardous and difficult operation—nor must he be deterred by the thought that he may remove a benign process. He should, of course, take great pains to exclude a common duct stone impacted in the ampulla. Fortunately cholangiography and common duct exploration can be relied upon to obviate this possibility. Because the technical details of pancreaticoduodenectomy have been adequately dealt with elsewhere,[17] they need not be discussed here. Suffice it to state that the operation in competent hands is a good one which should not be associated with an unreasonable mortality. It is still well to bear in mind that if the jaundice has been of long duration, preliminary decompression of the biliary tract by choledochostomy is at least desirable if not essential. Ten days to two weeks or so later, definitive resection can then be accomplished much more safely. If, however, jaundice is of but short duration and the patient's nutritional reserve is adequate, pancreaticoduodenectomy is appropriately performed in one stage.

That early cancer of the head of the pancreas can be completely removed, is now adequately documented in recent surgical literature. The case histories of some dozen patients who have survived longer than five years are now available for study. That these twelve have been gleaned from but a small proportion of the total number of patients who have been operated upon, cannot be doubted. At the same time, the number of all those who have survived five or more years would probably be considerably greater if they all had been reported. Nevertheless, if it were possible to collect all the data on patients who have been treated for pancreatic cancer, the cure rate would probably still be low. It is, of course, this dismal picture which has prompted Cattell and Pyrtek[18] and Parsons[19] to make their discouraging observations on pancreaticoduodenectomy for pancreatic cancer. Since cancer of the head of the pancreas is invariably fatal if uncontrolled surgically, is it not preferable to continue the more hopeful, venturesome, and wholesome point of view of Brunschwig,[20] Orr,[21] and Dennis and Varco.[22] These latter authors conclude in their recent article upon this subject, "The outlook in these tumors, both pancreatic and ampullary, appears not to be appreciably worse than the outlook in cancer of the stomach." It does not appear likely that surgery will soon abandon operative treatment for either gastric, ampullary, or pancreatic cancer.

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TRANSVAGINAL PUDENDAL NERVE BLOCK, AN IMPROVED APPROACH IN OBSTETRICS AND GYNECOLOGY*

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NEW ORLEANS

This is a report on a new simplified approach to pudendal nerve block, developed in 1954, on the Louisiana State University obstetric and gynecologic service of Charity Hospital in New Orleans. The pudendal nerve is blocked on each side transvaginally, by carrying the needle into the vagina and making a single injection of procaine solution directly through the vaginal mucosa and the sacrospinous ligament, at a point overlying the pudendal nerve. Pudendal nerve block using this approach can be administered easily and with very little discomfort to the patient. In this respect the transvaginal approach has a great advantage over the conventional transperineal methods.

To review these methods briefly, the standard techniques of pudendal block until a few years ago were essentially local infiltrations of the perineum, in which the terminal branches of the various nerves supplying the region were infiltrated, one by one, usually through a single skin wheal on each side. These nerves are the ilioinguinal, the posterior femoral cutaneous, and the pudendal, which divides into three branches, the dorsal nerve of the clitoris, the labial or perineal nerve, and the inferior hemorrhoidal nerve. The infiltration was often supplemented by additional injections, below the ischial spines or in Alcock's canal, to block the pudendal nerve proximal to its division into its terminal branches. This combined type of block, which depends chiefly on local infiltration for its effectiveness, is probably the most popular one today.

Several years ago, however, E. W. Klink in Philadelphia, in a very thorough clinical and anatomical study, showed that local infiltration of the terminal branches in pudendal nerve block is unnecessary. He demonstrated that the ilioinguinal nerve and the posterior femoral cutaneous nerve do not play a significant part in the innervation of the female perineum and that the entire perineum can be anesthetized simply by blocking the main trunk of the pudendal nerve, using a single transperineal injection on each side.

The inferior hemorrhoidal nerve is usu-

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ally described as a terminal branch of the internal pudendal, given off below the ischial spines, in Alcock's canal. In 50 per cent of cases, however, Klink found that it arises as a separate branch of the sacral plexus, usually pierces the sacrospinous ligament, and passes directly to the perineum without entering Alcock's canal. This aberrant inferior hemorrhoidal nerve is blocked in Klink's method high behind the sacrospinous ligament, with the last portion of anesthetic solution. With the transvaginal approach, this nerve is blocked by direct infiltration of the ligament in the area where the nerve fibers pierce it.

TECHNIQUE

The following technique is simple to perform and has given quite satisfactory results.

A 10 cc. syringe filled with 1 per cent procaine and attached to a No. 20 spinal needle is used. The status of the presenting part and the location of the ischial spines are first determined vaginally. The needle and attached syringe are then held with the tip pressed flat against the ball of the index finger and with the syringe entirely above the thumb of the hand in the vagina (Fig. 1). Protected by the finger, the needle is carried into the vagina to the ischial spine. The needle tip is released from the index finger, and enters the vaginal mucosa near the lower edge of the sacrospinous ligament, just medial to the spine (Fig. 2). A submucosal wheal is made, and is felt by the index finger to be sure that the needle tip is still superficial to the ligament. The needle is then advanced, keeping steady pressure on the plunger of the syringe. The ligament is infiltrated with about 3 cc. of solution. When the needle pierces the ligament and enters the loose connective tissue behind it, the resistance of the plunger suddenly decreases and the solu-



Figure 1. Technique of inserting the needle into the vagina. The tip of the needle is pressed flat against the ball of the index finger in the vagina.



Figure 2. Technique of injection. The sacrospinous ligament has been pierced and the needle and syringe are in their final position. The syringe remains entirely above the hand in the vagina.

tion flows in easily. After aspiration to guard against possible intravascular injection, the remaining fluid is deposited beneath the ligament. The needle is withdrawn and the procedure is repeated on the opposite side, using the opposite hand in the vagina.

RELIABILITY

This method has been evaluated both statistically and in terms of its practical applicability. The reliability of the method was studied on the delivery unit of Charity Hospital by using the transvaginal approach exclusively for a consecutive series of pudendal blocks over a period of several months. These blocks were done under many different circumstances, regardless of the stage of labor, on every available patient prepared for delivery or for sterile vaginal examination. The block on each side was evaluated separately. Each consisted of a single transvaginal injection of 10 cc. of anesthetic solution. In a series of 300 consecutive transvaginal pudendal blocks, complete anesthesia of each side of the perineum resulted from the initial injection about 84 per cent of the time. The reliability of the transvaginal method is therefore similar to that reported for many other types of pudendal nerve block.

PRACTICAL EVALUATION

From the practical standpoint, it appears that the transvaginal approach, although of value in obstetrics, has its greatest usefulness in gynecology, both in the office and in the operating room. It has been used successfully for a variety of operations upon the vagina and perineum, including multiple vulvar biopsies, excision of bartholin cysts, anterior and posterior colporrhaphy, and even vulvectomy. The great advantage of this method over the various transperineal techniques is its ease and relative painlessness of administration. The extent of anes-

thesia is the same as that obtained using the conventional transperineal pudendal block. There is no effect upon the uterus or its supporting ligaments.

In obstetrics, the transvaginal approach, while often useful, has certain limitations. In some multiparous patients, the sacrospinous ligaments are too soft and attenuated to serve as landmarks for the transvaginal approach. These patients can be blocked with greater certainty through the perineum, using the ischial spines as a guide.

Occasionally, when the transvaginal method is attempted late in the second stage of labor, with the patient bearing down and the presenting part distending the perineum, there is difficulty in controlling the needle in the vagina. Under such conditions the conventional perineal approach will usually give better results.

When delivery is imminent, however, it is often wiser simply to infiltrate locally for the episiotomy, deliver the patient, and then perform a pudendal block to obtain better relaxation and anesthesia for the repair. In this circumstance, the transvaginal approach is usually the procedure of choice. It can be performed very easily on the postpartum patient, and provides satisfactory anesthesia for the repair of almost any vulvar or vaginal laceration. It has been used, without the necessity for a supplemental local infiltration, for the entire repair of complete perineal lacerations, and even for anterior tears extending into the clitoris without discomfort to the patient.

On the postpartum wards a transvaginal pudendal block has been used at times to give temporary relief from a painful episiotomy repair. In such cases the addition of epinephrine to the solution, or the use of a long-acting local anesthesia is especially desirable.

SAFETY

In this entire series there were no reactions to the local anesthetics used, perhaps because they were given in relatively small amounts. There were no significant hematomas. There were no fevers or infections which definitely could be attributed to the transvaginal method. It appears that transvaginal pudendal block is a safe procedure from the standpoint of infection, in spite of the fact that the needle is inserted through an area which is not strictly sterile.

CONCLUSIONS

It is apparent that both the transvaginal approach and the perineal approach at times have their special indications. When the sacrospinous ligaments are too thin to be palpated, or when access to them is blocked by descent of the presenting part, the perineal approach will give better results. On the other hand, in certain obese obstetrical patients with thick, heavily muscled pelvic floors, and in most gynecologic patients, the transvaginal approach offers the most convenient, and at times the only way of blocking the pudendal nerves at the spines, without resorting to local infiltration. In the majority of patients, where almost any method may be used successfully, the transvaginal approach still has certain advantages. Of all the methods, this is the easiest to learn, the simplest to execute, and causes the least possible discomfort to the patient. This procedure by no means replaces the conventional transperineal techniques, but when used under the proper circumstances, it has distinct advantages in gynecology, as well as in postpartum obstetrics and in the management of labor and delivery.

SUMMARY

1. A new transvaginal technique of pudendal nerve block is described.

2. The method is simple and relatively painless.

3. Its safety, reliability, and usefulness in obstetrics and in gynecologic surgery are discussed and evaluated.

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THE GRADING OF INDICATION AND CHOICE OF PROCEDURE FOR GYNECOLOGIC OPERATIONS AT A PRIVATE HOSPITAL

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In the past few years a new duty has been placed upon the medical profession. It is determining merit and quality in the private practice of medicine, the procedure of medical auditing. It has been traditional to respect the privacy of the physician's professional life and all his dealings with his patients. The only occasion when a third party entered this privacy was when a consulting physician was called by either the doctor or his patient; at all other times there was absolute privacy and almost sublime mutual trust.

Recently, there has developed a need for a medical audit of this hitherto uninvaded relationship. Several factors have made it necessary for private medicine to perform this task for itself. First, there is the distrust by an occasional patient of his physician and the emerging of a number of legal actions against doctors for all sorts of real or imagined wrongs. In this climate there arises the possibility of governmental intervention and regulation of medical practice. A second and, to us, far less significant factor necessitating inspection of this kind is the great growth of the medical family itself with the appearance of a small but definite amount of substandard practices in the everyday practice of medicine by a few doctors. It is the universal belief among physicians that this fraction is small when compared to the total amount of high quality work done by dedicated medical men.

Private medicine feels compelled to audit its own books, then, for two obvious reasons. These are, first, to find this so-called medical wrong and to recommend steps for its correction, and, second to render it completely needless for governmental authorities to perform any type of inspection and regulation of private medicine.

With these thoughts in mind and as an extension of its duties, the Tissue Committee of Our Lady of the Lake Sanitarium undertook to find out how and why hysterectomy operations were being done at that hospital. A temporary committee was formed and asked to review a sample of records of hysterectomy operations and to report on pertinent points in the case histories to the Tissue Committee.

MATERIAL AND METHOD OF STUDY

General: Between October 1, 1953, and September 30, 1954, there were 210 hysterectomy operations. One hundred seventy-six were selected at random for analysis. Information was tabulated as to patient's age, staff classification of doctor performing the operation, preoperative diagnosis, anesthetic, type operation, main pathology found, and the committee's arbitrary grading of the case. There was no mortality in the group studied.

The number of doctors in the different staff categories at this time were: Obstetrics and Gynecology — 18 (10 diplomates of the board) General Surgery—25 (7 diplomates of the board), and General Practice—43.

Grading: Since there is available no completely acceptable standard of auditing these operations in a private hospital the committee devised a system of grading modified from Williams.[1] Attention was given to choice of operation as well as indication for surgery, although evaluation of the former could not be done accurately from the charts alone. No evaluation was possible of technical performance, length of procedure, difficulty of operation, and general management of preoperative and postoperative course other than to note the complications or sequelae. The following categories were set up for grading hysterectomy operations:

Grade A: Required without delay. These are the operations which must be

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done in order to save the life of a patient. Examples are rupture of uterus, uterine atony after delivery, and all correct operations for pelvic malignancy.

Grade B: Required elective. These operations are done for the benign neoplasms, recurrent bleeding following D & C, and a few instances of extreme pelvic relaxations with unbearable symptoms including dyspareunia.

Grade C: Desired elective. These operations are done for the relief of symptoms which are not intolerable to the patient, but symptoms which should be removed in order for the patient to be comfortable and to lead a happier, normal life. Most vaginal hysterectomies were put in this group as well as hysterectomies for abnormalities of bleeding when D & C was not done as an initial method of treatment.

Grade D: Operations which definitely should not have been done. This group would include those with obviously wrong preoperative diagnosis where the surgeon could have been expected to arrive at the correct one; and obviously wrong choice of operation where average good judgment could be expected to dictate another type of treatment or operation.

OBSERVATIONS

The results of the analysis are best presented in tabular form. Tables 1 through 7 display these data.

TABLE 1
AGES, 176 PATIENTS HAVING HYSTERECTOMY

Under 20 yrs	0
21 to 30 yrs	24
31 to 40 yrs	78
41 to 50 yrs	54
51 to 60 yrs	11
Over 60 yrs	9

TABLE 2
NUMBER OF OPERATIONS BY CLASSIFICATION OF OPERATOR

Gynecologist, board diplomate	74
Gynecologist, not diplomate	61
General Practitioner	26
General Surgeon	15
	176

TABLE 3
TYPE OF OPERATION

Total abdominal hysterectomy	132
Subtotal abdominal hysterectomy	6
Vaginal hysterectomy	38

TABLE 4
TYPE OPERATION AND CATEGORY OF OPERATOR

Classification	Total abd.	Subtot. abd.	Vaginal	All
Gynecologist (diplomate)	55	3	16	74
Gynecologist (not diplomate)	38	2	21	61
General Practitioner	24	1	1	26
General Surgeon	15	0	0	15
All operators	132	6	38	176

TABLE 5
PREOPERATIVE DIAGNOSIS

Relaxations	49	PP hemorrhage	3
Abnormal bleeding	47	Ovarian cyst	3
Pain	21	Previous c. section	1
Myoma	17	Couvelaire uterus	1
Endometriosis	9	Ectopic pregnancy	1
Residues of PID	8	Cervical stenosis	1
Fibrosis uteri	4	Pelvic congestion	1
Malignancy	2	Other	7

TABLE 6
PRINCIPAL PATHOLOGIC LESION

Myoma	58	Adenocarcinoma	3
Endometriosis	56	Retained secundines	1
Residues of PID	12	Squamous cell ca.	1
Hyperplasia	10	Other	22
Endometr. polyp	7	Not significant	31

TABLE 7
GRADING OF OPERATIONS

Grade A	7
Grade B	77
Grade C	89
Grade D	3

DISCUSSION

There are a great many things to be said about an analysis of this type. When it was first begun there was doubt as to whether the charts, understandably brief in a private nonteaching hospital contained enough data to make the survey worthwhile. There was not always a clear-cut preoperative diagnosis written down. In operative dictations more extensive notes were made of the technique than of

the surgeons' view of the internal organs with pathologic process. Even the pathologist's reports were lacking in an occasional necessary detail. However, in spite of the drawbacks certain significant points came to light. The great majority of the operations were done for bleeding, pelvic pain, or relaxations. In a substantial number of cases no preoperative etiologic diagnosis was made as being responsible for pain or bleeding; yet in other instances curettage was carried out prior to performing definitive surgery. Tabulation of this important sequence of operations could not be accurately done because of the omissions, mentioned above, of the brief records. The committee concluded that most of the uncuretted patients had clinical diagnoses of endometriosis, which diagnosis may not have appeared on the charts. The committee felt that diagnosis of bleeding caused by endometriosis justified hysterectomy without curettage, whereas undiagnosed uterine bleeding did not warrant hysterectomy without preliminary curettage.

Also, it may be noted that information as to type of operation and operator confirms the suspected trend that the gynecologists are performing the vaginal operations. Of interest is the observation that only one of the 176 hysterectomies was done by a diplomate of the American Board of Surgery, and that in connection with abdominoperineal resection of the rectum.

In studying the pathologist's reports the committee noted several interesting facts. The majority of specimens exhibited adenomyosis and endometriosis, though this diagnosis was not listed with the principal lesion in all cases. Next in frequency of occurrence was myoma. All told there were four instances of malignancy, two of which were not diagnosed preoperatively. One adenocarcinoma was missed when the pathologist gave a negative reading on a frozen section study of preoperative curettings. A squamous cell carcinoma of the cervix was not large enough for the operator to suspect it preoperatively; it measured 0.5 by 0.4 by 0.3 cm. when the pathologist examined the operative specimen.

There were three operations graded D. The two instances where the specimen contained an unsuspected malignancy were described above. A third procedure graded down was a hysterectomy done to control bleeding in the case of incomplete abortion. A curettage was not done on this 34 year old patient.

RECOMMENDATIONS

The committee felt the study proved, in general, that hysterectomy operations are done competently for valid indications. The records show that gynecological surgery as practiced at this hospital is good. The committee submits herewith its recommendations for further improvement:

1. Free use of curettage in establishing the cause of abnormal uterine bleeding.
2. Thorough diagnostic studies to arrive at a preoperative diagnosis of pelvic pain.
3. Discouragement of use of partial surgery in treatment of obscure pelvic pain.
4. Recording by the pathologist of such important details as the size and number of myomas; the extent of penetration of the uterus in adenomyosis; the extent of ovarian endometriosis; the apparent duration, the type and severity of salpingitis.
5. Specific notation on the chart by the gynecologist of main symptom and its cause: "This patient is being operated upon for _____ (example: pain). The preoperative diagnosis is _____ (example: endometriosis)". The fear of not being substantiated by pathological examination should not deter the clinician from noting his preoperative diagnosis.
6. Description of the pathologic findings at time of surgery to be included in the operative dictation.
7. Recording, by the anesthetist, of all medications used during the operation as well as noting type of surgery done.

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THE MANAGEMENT OF THE RED EYE IN GENERAL PRACTICE *

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Congestion of the blood vessels of the conjunctiva and deep vessels supplying the eye is the chief sign occurring in a variety of ocular conditions, which range in severity from acute angle-closure glaucoma, which may cause blindness within a few hours, to a self-limited catarrhal conjunctivitis. The management of many such conditions frequently does not necessitate specific recognition of the exact disease process, but does require prompt distinction between superficial and minor conditions and deep vision destroying processes.

In all except serious emergencies the distant vision should be measured with and without glasses. This measurement is not only extremely helpful in the differential diagnosis of the cause of the red eye but may well prevent the physician from being wrongfully accused of causing a visual loss which existed prior to the time a patient was treated. A pen light gives good illumination and a simple loupe yielding about 2½x magnification is most useful. Ophthalmoscopic examination may indicate the presence of corneal opacities, cataract, optic nerve disease or retinal lesions.

LESIONS OF LID AND PALPEBRAL CONJUNCTIVA

Lesions of the lids and palpebral conjunctiva should be initially excluded inasmuch as many patients describe an inflamed and painful eye when the symptoms arise from disease of the lid. The two most common inflammatory conditions of the lid requiring treatment are the acute suppurative chalazion and the acute hardeolum or stye. In the active suppurative stage the differential diagnosis between these conditions is of no great importance since the treatment is the same although the prognosis is much different. The involved portion of the lid is swollen, is sometimes extremely tender and painful and there may be swelling of the pre-auricular lymph nodes. The stye tends to point along the lid margin and with necrosis of the overlying skin with release of a drop of pus and relief of pain.

The chalazion points deeper in the lid, frequently in the palpebral conjunctiva and causes more pain when the lid is manipulated. Occasionally a suppurative stye and chalazion may occur simultaneously. Local instillation of antibiotics or sulfonamides are of no value in the acute process but may prevent other glands of the lid from becoming involved. Sometimes resolution is hastened by pricking the pointing surface with a number eleven Bard-Parker blade but hot compresses frequently applied are the most useful method of treatment. Systemic antibiotics, while useful, are usually not indicated because the inflammation is localized and self-limited.

Usually following suppuration a chalazion forms a painless, localized mass in the lid and no treatment except excision is helpful. If not removed this may be extremely large and unsightly and is frequently the site of recurrent inflammation.

Blepharitis is no longer the difficult problem it was in the pre-antibiotic period and most cases seen today are part of a seborrheic dermatitis or evidence of a chronic inflammation of the Meibomian glands. Although not serious in respect to sight, these conditions are most resistant to treatment and require a correction of general hygiene of the scalp as well as local antiseptics.

A common cause of a red eye which may be easily overlooked is eversion of the lower lid or entropion. This occurs intermittently, and may not be present when the patient is examined, unless he is asked to squeeze his lids closed after which the typical anomalous position of the lid is noted. The treatment of this

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condition is a relatively simple plastic procedure.

DIFFERENTIAL DIAGNOSIS OF SUPERFICIAL AND DEEP DISEASE

Great stress is placed upon distinguishing between conjunctival injection, which is associated with superficial inflammation of the eye and deep ciliary injection which occurs in iritis, glaucoma, and corneal inflammation. The instillation of a drop of 1:1,000 epinephrine is frequently helpful as it will constrict conjunctival vessels and make the eye white but will have no effect upon the deep ciliary blood vessels.

The appearance of the iris and the pupillary reaction is most important in distinguishing between superficial and deep disease. (Table 2) In conjunctivitis

TABLE 1
THE RED EYE
ACTION OF TOPICAL DRUGS

	Self-limited Disease	Dangerous Disease
Epinephrine (1:1,000)	Vessels constrict	No effect
Pontocaine (0.5%)	Pain relieved	Pain continues
Sterile Fluorescein (2.0%)	No stain	Cornea may stain

regardless of severity, and in virtually all superficial conditions, the cornea is clear and glistening. Through it the normal iris pattern is visible and the pupils of the two eyes are of equal size and their reaction to light is vigorous and prompt. In deep inflammations the iris pattern may be blurred and muddy; the pupillary margins may be irregular; the pupillary response to light is sluggish or absent. The size of the pupils in the two eyes may be different. Such involvement of the iris is a sign of most serious disease—angle closure glaucoma or iridocyclitis. Inflammation of the cornea may cause an opacity through the iris which cannot be seen clearly but involvement of the interior of the eye occurs very late in the course of the disease.

Pain in ocular inflammations may vary from that of foreign body, or mild itching, or burning or be deep, severe, aching pain which may cause nausea and vomiting. The discomfort of superficial irritation and even the pain of keratitis will be entirely relieved by the instillation of a single drop of 0.5 per cent Pontocaine tetracaine HCl N.N.R.) but has no effect upon the deep pain of glaucoma or iridocyclitis.

TABLE 2
THE RED EYE
SIGNS

	Self-limited	Dangerous
Iris	Details clear	"Muddy" pattern
Pupil	Round, equal, react to light	Irregular, unequal, defective pattern
Vision	Normal	Reduced

Vision is never affected in superficial conditions although the irritation and photophobia present may make testing difficult. These may be relieved by a local anesthetic so that accurate measurement is possible. Keratitis involving the central cornea, angle closure glaucoma and uveitis may all cause a marked diminution of vision.

BACTERIAL CONJUNCTIVITIS

Bacterial conjunctivitis is becoming an uncommon disease in the average practice. The usual patient is self-treated with an antibiotic or sulfonamide prescribed for a friend and the disease clears. An unfortunate group, however, use a drug to which they are sensitive and their eye lids become swollen, the conjunctiva red and injected, and their eyes burn and itch with symptoms far more severe than those with original disease. Penicillin, streptomycin, and sulfathiazole preparations should not be used in the eye because of the frequency with which allergic reactions follow. Sulfacetimide, Gantrisin, Neosporin and a host of similar drugs are usually more effective and much less likely to cause a sensitivity reaction. The addition of cortisone to these compounds for conjunctivitis is not justified and may lead to complications more severe than the original inflammation.

SUBCONJUNCTIVAL HEMORRHAGE

A surprising number of patients present themselves with a subconjunctival hemorrhage. Usually this has occurred spon-

taneously and other than the localized bright red area surrounded by normal white conjunctiva, no signs or symptoms are present. This type of bleeding may be a sign of serious organic disease but it is not important as far as the eye itself is concerned. Hypertension and arteriosclerosis should be excluded before reassuring the patient.

CORNEAL CONDITIONS

Superficial conditions involving the cornea are usually easily identified if a drop of sterile fluorescein is instilled into the eye. The staining may be intensified if the excess fluorescein is removed with 4 per cent cocaine solution. Breaks in the integrity of the corneal epithelium are always serious and care must be taken not to use solutions contaminated with bacteria.

Probably the commonest condition causing staining of the cornea is a foreign body. It may be frequently washed out of the eye by means of a stream of saline directed from a 5 cc. syringe after the cornea has been anesthetized. The eye is far more tolerant of this procedure than it is of wiping with a moistened cotton-tipped applicator. Studies with a slit-lamp show that even when applied with unusual gentleness an applicator removes large areas of corneal epithelium and creates a defect much greater than caused by the original injury. If the foreign body is so loosely adherent that it could be wiped off with an applicator it may also be irrigated off with much less damage.

The failure of irrigation to remove a foreign body suggests that it was hot when it struck the eye, and that it then coagulated the protein of the cornea and became adherent. Such a foreign body may be removed by means of a sterile 25 gauge hypodermic needle using a syringe for a handle. It is important to hold the needle practically parallel to the eye so that regardless of movements of the patient, the needle will not impale the eye.

With the needle tangential to the cornea the foreign body may be gently scraped away. If it has been there for a time, the top will frequently come off leaving a ring of rust behind. This ring should be gently scraped away and usually comes out in minute fragments. It must be removed because the corneal epithelium heals very slowly over it. Sometimes it is easier to remove the ring twenty-four hours later than at the time of removal of the foreign body but this should be reserved for occasional patients in whom the foreign body has been deeply imbedded. An adherent foreign body will almost invariably cause a corneal scar so that dissection should be limited to that essential to removal.

Just as important as the removal of the foreign body is the treatment of the traumatic inflammation of the cornea which follows, and the prevention of infection. If irrigation was all that was required the instillation of a sulfonamide or antibiotic may be all that is necessary. The patient should be seen once again within the week to make certain the cornea no longer stains with fluorescein. If there is a deep corneal defect the eye will be more comfortable if tightly patched so that the lid will not rub over the denuded surface. The patient should be reassured that the foreign body is removed even though the discomfort following removal is exactly the same as that experienced when the eye was first injured. Pain should be controlled with aspirin, combined with codeine, if necessary, and never by local anesthetics which delay healing. If there has been extensive injury to the eye the pupil should be dilated with homatropine. Atropine should be used very seldom, if at all, unless one has special equipment available for diagnosis. The patch may be removed as soon as the cornea does not stain with fluorescein. As long as an epithelial defect persists, an antibiotic or sulfonamide should be instilled locally at regular intervals.

The use of appropriate sulfonamides and antibiotics has greatly decreased the number of inflammatory corneal conditions due to bacteria. No longer is con-

junctivitis complicated by corneal involvement and the control of the bacterial invader causes prompt amelioration of the inflammation.

Inflammations of the cornea due to viruses, notably the virus of herpes simplex, have become increasingly serious in recent years. Herpes simplex, or dendritic keratitis, is characterized in its acute stage by a severe foreign body sensation and a branch-like area of epithelial destruction. Like the familiar fever blister of mucous membranes, it tends to follow trauma, febrile illnesses, and sometimes allergic disturbances. Cortisone and its derivatives administered locally or systemically seriously aggravate the inflammation and must not be used. Treatment is frequently disappointing and the scarring which occurs with recovery may seriously disturb vision.

Deep inflammations of the cornea are usually easily recognized because of the loss of clarity they cause. In these inflammations the specific diagnosis is of the utmost importance as many of the conditions arise because of associated systemic disease.

ANGLE CLOSURE GLAUCOMA

Angle closure glaucoma occurs in individuals predisposed to the condition by an abnormally shallow anterior chamber. The disease is ushered in with dramatic suddenness with severe pain, reduction of vision and sometimes prostration. The tension is elevated, the pupil fixed in middilation and the globe exquisitely tender to touch. The disease is a true emergency requiring early skilled treatment. The administration of diamox systemically and medication to constrict the pupil is indicated until specialized treatment is available.

ACUTE IRITIS

Acute iritis may be ushered in similarly although usually the onset is not as rapid. Although atropine is the treatment of choice it must not be used unless it is certain that the diagnosis is correct. The cloudy iris, the ciliary injection, the small and fixed pupil aid in the diagnosis.

In both angle-closure glaucoma and acute iritis there is marked decrease of vision in the affected eye signalling the need for early, skilled treatment. These conditions represent as serious an emergency as concerns vision, as an acute abdomen, and treatment must not be delayed if the eye is to be saved.

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AN IVALON FEMORAL ARTERY PROSTHESIS

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ALEXANDRIA

The homographic replacement of the aortic, iliac and femoral segments is an accepted procedure; however, the difficulty of procuring and preserving these vessels has necessitated an urgent search for an ideal prosthetic device. In areas where "bending" is not a factor a number of substances, particularly Ivalon sponge [1] and nylon cloth, have been used successfully. DeBakey and his co-workers in Houston, and Edwards and his co-workers in Birmingham have both had unsuccessful experiences with smooth tubes of Ivalon and nylon, respectively, in the femoral and popliteal areas due to "bending", occlusion of the tube and subsequent clotting. Dr. Edwards recently has demonstrated the feasibility of a crimped nylon prosthesis in replacement of the femoral segment.[2]

Because we believe the inherent physical properties of Ivalon to be superior to those of other prosthetic materials, we are presenting here a method for producing an Ivalon prosthesis suitable for use as a femoral segment.

This prosthesis is a spiraled, accordionated tube of Ivalon with an internal diameter of 6 mm. and an external diameter of 9 mm. This prosthesis has about the same pliability and consistency for sewing as a blood vessel, makes a smooth, tight end-to-end or end-to-side anastomosis in the conventional manner, does not leak and yet is sufficiently porous to be readily invaded by fibrous

ingrowth. This tube may be bent easily through 180 degrees without significant occlusion of the lumen (Figure 1).

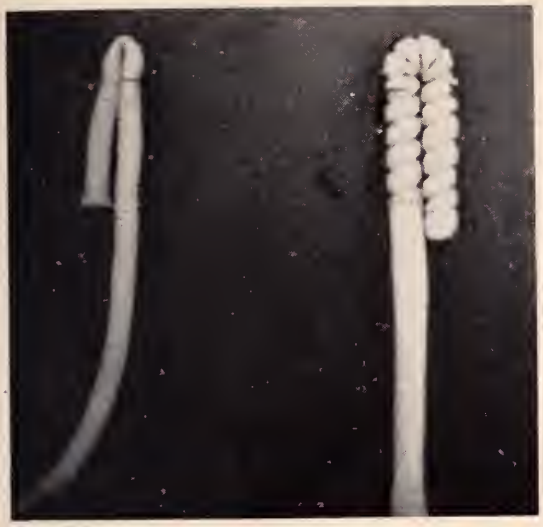


Figure 1. Comparison of the nylon (left) and Ivalon prostheses in acute angulation. (Note difference at point of acute angulation.)

Edwards et al. have demonstrated by means of postoperative arteriograms that the internal irregularities are of no practical disadvantage in the circular crimped tubes used by them.[2]

To prepare this spiraled accordionated Ivalon tube: (1) a spiraled spring steel or rubber piece is placed on a brass rod with an external diameter of 6 mm.; (2) this is wrapped with Ivalon sponge; (3) a cord 3 mm. in diameter is wrapped in the depressions of the spiral. This is then accordionated, wrapped with surgical gauze and fixed under 15 pounds of steam pressure for nine minutes. The tube is slipped from the rod, and the internal and external wrappings removed. Thus is produced the object of this paper.

This tube per se has not been used in vivo at the time of this writing; however we believe this prosthesis will prove to be superior as a femoral segment because of:

1. The inherent physical characteristics of Ivalon

2. The increased ability of this spiraled accordionated tube to withstand acute angulation without significant occlusion of the lumen.

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ALLERGIC REACTIONS TO COMMON DRUGS *

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By allergic reaction we mean a qualitatively altered response of the human tissues to a specific drug, as distinguished from a toxic reaction. This is almost certainly the result of antigen-antibody reaction. For the allergic state to exist, there must have been contact with the drug or its antigen in another form. The fact that a drug has been taken previously or repeatedly is no evidence that a patient may not be hypersensitive. In fact, he could not have been sensitized without previous contact with the drug or a closely related antigen. I shall not attempt to go into reactions not commonly seen, nor to discuss such controversial reactions as thrombocytopenia, granulocytopenia, or aplastic anemia.

SYMPTOMS

Symptoms of drug sensitivity are most commonly manifested by the skin. The skin alone may be involved as in contact dermatitis, or other entire systems may also take part in the reaction. The reaction may occur within minutes of contact or days or even weeks later. It may range in severity from mild transient inconvenience to death within minutes, or after a progressive lingering illness.

For those interested in more than a superficial, but I hope practical discussion of very common reactions, I am happy to be able to recommend a most readable book of only 301 pages, including extensive bibliography. This book has quick reference tables of various drugs with probability data on individual drugs causing various types of reactions. I recommend it for each on your desks, not book

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shelves. The title is *Reactions With Drug Therapy*, W. B. Saunders Company, Philadelphia. The author is Dr. Harry L. Alexander, of St. Louis, for many years editor of the *Journal of Allergy*.

Since skin symptoms are the most common and usually the most demanding of our skill in treatment, we will give most of our time here to discussing them. It is always desirable, but at times very difficult, to know the offending drug. Frequently the character of the rash and its distribution give us the clue we need. Drug rashes usually are either urticarial or inflammatory. The gradations in intensity may range from mild to severe, even with extensive destruction of tissue. Although almost any drug may cause almost any type of rash, and the exposure may be by external contact, by ingestion, by injection, or by inhalation, certain drugs so characteristically induce rashes with certain features that a knowledge of these usual types is important. I have seen an exfoliative dermatitis induced by iodide, though the usual iodide rash is discrete, red, shotty, acneform nodules. Quinine characteristically causes a scarletinaform erythema, but it may occasionally cause erythema multiforme, urticaria, or even a vesiculating contact type of dermatitis. Barbiturates and sulfonamides usually cause morbiliform rashes. They may cause urticaria, erythema multiforme, or contact type however. When they do cause urticaria there is usually little angio-edema and the wheals are apt to be small. Penicillin and aspirin, on the other hand, are prone to cause massive angio-edema and giant hives, though both may cause erythemas of various intensity by contact and by ingestion or injection.

CONTACT DERMATITIS

Possibly, contact dermatitis is the most common drug reaction the doctor sees. It is apt to be severe. Frequent and vicious sensitizers by contact are most of the "caine" drugs, Furacin, penicillin, antihistaminics, sulfonamides, and mercury. The list may be extended almost indefinitely. As new drugs are synthesized and more generally used, the list becomes longer and the reactions more frequent. There is no doubt that drug sensitivity is on the increase. There is a reason for this tied up with the chemistry of drug synthesis, which I shall not go into unless someone is particularly interested at the end of the discussion. Your fellow member, Dr. Dudley Youman, tells me of seeing contact dermatitis in the hands of institutional employees handling Thorazine. We are seeing more and more frequently reactions to Equanil.

Sulfathiazole ointment is apt to induce a particularly vicious dermatitis. In our experience, the sequence of events and the course have been quite characteristic. Invariably the ointment has been used on an inflamed area such as an old ulcer. The spread to the entire body area is rapid and the inflammation is intense. The patient is sick. Lesions often become pustular. The acute onset may be followed by an exfoliative dermatitis which lasts for months. I see no excuse for the manufacture, sale, or use of sulfathiazole ointment. Three of the members of your own society who have had considerable experience in this work tell me to add penicillin ointment to this list.

In all acute cases of a contact dermatitis, ointments are contraindicated for treatment except when used by a skilled dermatologist, and he rarely uses them. The only safe and effective local treatment for you and me to use on them is wet packs of such materials as aluminum subacetate solution, boric acid solution, or normal saline. When these become too drying for the patient's comfort, a nonmedicated cream may be used as a softener. Corticosteriod therapy is most useful and since prolonged treatment is rarely needed it is very safe in these cases when not absolutely contraindicated by some other disease.

Mercury dermatitis is less common since the days of broad spectrum antibiotics. I am afraid arsenic dermatitis is not following the same trend. Dr. Whitney Boggs of Shreveport told me of two cases of exfoliative dermatitis in 14 patients

who were on poorly supervised arsenic therapy for asthma. I do not know whether the liver damage said to occur from such therapy is on an allergic basis.

PENICILLIN

The drug which contributes more to our practice than all others combined is penicillin. By far the most common reaction is the delayed serum sickness type, frequently with fever and joint symptoms, and almost always with massive angioedema and pancake hives. While this reaction is essentially urticarial, it occasionally develops such an intensely inflammatory character that hemorrhagic areas with local sloughing occur. Before the day of corticosteroid therapy, I have seen showers of red cells in the urine and local necroses of lung and other tissues with this type of reaction. Frequent doses of epinephrine and large ones of antihistaminics were our only effective treatment. With ACTH and cortisone and its analogues, we are not so fearful of this type of reaction. The worst feature it frequently displays is to become chronic and to recur for many months. It has been suggested with some rationale that these people may get enough penicillin in milk to prolong the rash. I have seen no evidence to support this logical speculation. Possibly much of our beef too contains penicillin. In such chronic cases there is often a marked dermographic component. The diagnosis is usually evident as the patient, his physician, or both know that he had had penicillin a few days to a few weeks before the onset of the reaction. We saw one case who had the sensitizing dose six weeks previously, if his history as confirmed by his physician is accurate.

Histories are not always accurate. A physician's wife with severe giant hives continuing into the sixth week after a very acute onset absolutely denied any possibility of penicillin being causative. Her husband confirmed her statements. We found her markedly dermographic. The doctor became a little impatient on being told that in our opinion his wife had a penicillin reaction. He insisted that we call his partner who had treated her for an upper respiratory infection a week or so before the onset of symptoms. The partner confirmed the husband's statements but added as an afterthought, "Ask her if she used any of the troches I gave Dr. ——— at about that time". She had. Four of them, and they were penicillin.

Good treatment is still lots of water, 1-1,000 aqueous epinephrine as needed, and large doses of antihistaminic at regular intervals. In the absence of contraindications such as peptic ulcer, tuberculosis, and severe diabetes, ACTH or corticosteroids are quite in order. If the lesions tend to become indurated or inflammatory, such treatment is almost demanded. Usually consecutive daily doses of 80 units, 60 units, and 40 units, more or less, of ACTH-Gel are sufficient. We are beginning to like Prednisolone and Prednisone. These do not cause the marked water retention rather common with the use of the older preparations. The dosage schedule is usually started with 40 to 30 milligrams evenly spaced over the first twenty-four hours and reduced as rapidly as improvement permits.

It is the immediate reaction to penicillin that we fear. We produced one in our office in a patient to whom we had given penicillin on several occasions over a period of two or three years. Five minutes after the injection, this man appeared to be dying of asphyxia. He was extremely cyanotic, pulseless, and ceased to make any effort to breathe. With the first sign of reaction he was given 1 cc. of 1-1,000 aqueous epinephrine. Oxygen and artificial respiration were given. As my partner was trying for a vein with more epinephrine, the patient gasped. Soon we could synchronize our efforts with his gasping and by the time the fire department got there with a pulmotor we were in rhythm and could feel a pulse.

Please let me emphasize that the effective treatment in such a case is aqueous epinephrine and not antihistaminics or corticosteroids. When I read in a medical journal about the patient whose life was saved by an antihistaminic or other drug

than epinephrine, I shiver. Such a case probably would not have died anyhow if he lived until such slowly acting drugs could take effect. Anaphylactic death is rapid, and only rapid measures are in order.

The question in all of your minds is "Can we anticipate this reaction?" You have been only further confused by recent articles in the medical literature discussing skin tests with penicillin and lamenting their unreliability. I can tell you only what I have seen, and the evidence here is decidedly that they can be anticipated by a simple scratch test with the preparation to be used. Since the near disaster above, we have tested routinely with penicillin. I suspect that we have tested over 3,000 people. We have seen four positive reactions. Three of these were patients known to have had anaphylactic reactions whom we called in later for the tests. The other positive reaction was picked up in routine tests for another condition. When we told this woman that penicillin would be dangerous for her, she replied that she knew that already. She had had to stop helping her husband treat his cattle as handling penicillin syringes caused immediate edema and respiratory symptoms. Dr. William Browning, of Shreveport, anticipated such a reaction from a skin test. He warned the patient against penicillin and informed her physician of this sensitivity. Sometime later a different physician gave this woman an injection of penicillin. She walked out of his office and died on the sidewalk a few moments later. We got a negative reaction on one patient supposed to have had an anaphylactic reaction to penicillin. On further inquiry into the case, we were of the opinion that his supposed anaphylactic reaction was syncope plus the effect of 5 cc. of 1-1,000 epinephrine given over a very short period of time. He at no time had dyspnea, erythema, or urticaria.

It is our opinion that this dangerous type of reaction may be anticipated by putting a drop of the penicillin preparation to be given on the skin and scratching through it with a needle or a scalpel. If a definite wheal, particularly an irregular one, with erythema occurs within fifteen minutes, we would consider penicillin dangerous. We can say positively, however, that the skin test will not anticipate the delayed type of reaction, which is the common one seen from penicillin.

ASPIRIN

Now we come to a subject I dearly love to discuss—aspirin sensitivity. While aspirin can cause a severe and rapidly fatal asthma, this is not the usual sensitivity reaction. Aspirin asthma will bear some discussion, however, as one may see it any day and it is always a surprise. The attack comes on suddenly and within a very few minutes is severe. The patient is apt to appear ashen rather than red, and may be quite cyanotic. If he is able to talk, he can tell you that he took an aspirin or some other medication perhaps twenty minutes before the onset of symptoms. Aspirin asthma seems to be purely atopic in its pathology and one does not have to be concerned with loosening mucus plugs or relieving pulmonary congestion if the case is seen early. It responds surely and promptly to 1-1,000 aqueous epinephrine. One injection usually terminates the attack.

The common sensitivity reaction to aspirin is an entirely different one and by no means as easy to diagnose. It is a massive angio-edema almost always about the head and face, with or without involvement of other areas; usually with. Tender nodules of tightly swollen subcutaneous tissue are apt to occur in the palms and soles, making walking or driving actually painful. In our practice, the history is one of recurrence usually. You are more apt to see the first episode. I will give you my lecture repeated each year to the seniors at the University of Arkansas Medical School: "When you see a case of massive angio-edema about the head and face, with or without peripheral symptoms, and you are satisfied it is not due to penicillin, consider it due to aspirin

until proven otherwise." Such a reaction does, of course, occasionally occur with food sensitivity. This must always be considered with the first attack. This reaction, however, would only occur from foods not frequently eaten; and if the patient himself did not diagnose it the first time, he almost certainly would the second. The victim never suspects aspirin. To the average person, aspirin is as common a household article as soap or toilet paper and just as harmless. If he takes it at night, he has forgotten it by the next morning, if indeed he were conscious that the BC he took contained aspirin.

Never ask such a person if he had aspirin or any other drug or medication the night or a few hours before the onset of symptoms. If you do, you will create a mental block and he will start telling you so many reasons why it could not be aspirin or medicine that he will completely forget to try to remember whether he took medicine or not. I know you are all thinking of that fellow you have seen in half a dozen attacks who had had no aspirin. The chances are he is fooling himself and you, too. He is most probably the man who will wind up in the allergist's office, the patient whom this discourse concerns.

Ask him rather if he had a headache or a sore throat or any other minor symptom a few hours before the swelling occurred. He will remember that. Then ask him what he did for it. Maybe he gargled aspirin, took a Four-Way cold tablet, or a BC. Then give him lecture number one, to the effect that any tablet or powder or medicine he buys across the counter for minor ailments will almost certainly contain aspirin regardless of the label. When he comes back two or three weeks later with the same condition and remembers that he did take some Alka-Seltzer for a little indigestion, give him lecture number two. It is identical with number one. Numbers three and four are identical with numbers one and two respectively, but are less frequently given in the order of ascending numbers. I have not had to give lecture number five, but when I do it will be the same as number one. The woman who has urticaria with her menses is usually aspirin sensitive.

The skin test is worthless in determining aspirin sensitivity. I am often asked whether these cases can take sodium salicylate. I have never hesitated to give the latter drug if needed to an aspirin sensitive individual, and do not recall ever having seen any allergic reaction. The treatment is the same as that of penicillin reaction, as the two are very similar. Penicillin is prone to cause somewhat more violent symptoms and to be associated with fever and joint pain. It also tends to last longer, is more apt to be followed by dermographism, and may even assume a chronic state which will last for months. I am not at all sure that aspirin may not induce dermographism in some instances.

Epinephrine, 1-1,000 aqueous, has been repeatedly mentioned today. My reason is that I fear someone may use the long-acting suspension in oil or gelatin. These preparations are not as reliable nor as rapid in action as the aqueous solution. Twice I have seen reactions from them, one from each, as frightening as most anaphylactic reactions, and much more difficult to treat. These two cases were very similar. The systolic blood pressure was near the 200 mark (one of these patients was known to be hypotensive), the pulse was very rapid, pallor and apprehension were marked, and both patients complained bitterly of severe headache and pain in the back. Fortunately, both injections had been given into the middle upper arm so that a tourniquet could be applied above. Alternate tightening and loosening was necessary on the first case for nearly six hours. We finally got the second one relieved after one-half grain of morphine.

One more word about drugs in treating drug reactions: Antihistamines are effective only in the urticarial reaction. They are worthless in contact dermatitis or

other inflammatory conditions, except used locally for their anesthetic effect, and here they are potent sensitizers. Epinephrine is effective only in the urticarial type. Ephedrine and other sympathomimetics are so stimulating to the nervous system that they are hardly worth using. Corticosteroid therapy is effective in treating almost any type of allergic reaction. There are definite contraindications to its use as you all know, but occasionally these may be relative rather than absolute. One may have to take a calculated risk but the dangers of such therapy may be minimized by proper measures. Except for the definite contraindications, the short courses of corticosteroid therapy usually necessary seem to be very safe. We have used it in one form or another on possibly 50 cases of severe drug reaction without any untoward effect.

SUMMARY

Drug hypersensitivity is becoming more frequent. Almost any drug may cause a variety of dermatosis, but certain drugs so characteristically cause certain types of reactions that one can usually strongly suspect them from the appearance of the skin.

Special attention is given to penicillin and aspirin sensitivity. Many of the dangerous anaphylactic reactions from penicillin may be anticipated by a skin test.

The few drugs needed in treating various drug allergy reactions are briefly discussed.

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The Journal of the Louisiana State Medical Society

Established 1844

Published by The Journal of the Louisiana State Medical Society, Inc. under the jurisdiction of the following named Journal Committee:

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C. M. Horton, M. D., Vice-Chairman
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OFFICERS OF THE LOUISIANA STATE MEDICAL SOCIETY FOR THE COMING YEAR

At the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, held in Alexandria, on April 23-25, officers were elected for the coming year, who are conscientious and capable, and to whom the Society can entrust the operation of its affairs with confidence and security.

Dr. Paul D. Abramson, outstanding surgeon of Shreveport, has been an active and capable executive in Caddo Parish Medical Society for many years. He has served with value and distinction on the Council of the Society for a long succession of terms. His experience in the affairs of organized medicine has been one which will be most valuable to our Society. While the groundwork for the legislative battle over the bill to license chiropractors has been well laid in the previous administration, the Society can consider itself most fortunate to have a President whose capabilities have been demonstrated so well in previous years.

The President Elect is Dr. H. Ashton Thomas, prominent ENT physician of New Orleans. Dr. Thomas has been President of the Orleans Parish Medical Society, has served capably on many assignments connected with that organization, and for many years has been Chairman of the Council. As such, his judicious and careful attention to the complex problems presented to the Council has brought commendation and appreciation from the House of Delegates and the membership. It is a pleasure to congratulate him on his election as President Elect.

The first Vice President, Dr. H. H. Hardy, Jr., of Alexandria, has served the Society well as a Councilor, as a Vice President, and as a capable and active worker in our affairs in Alexandria for many years. He is a most active and respected surgeon. The Society owes him thanks also for acting as General Chairman for the meeting just held, which was so satisfactory for the organization and so pleasant for the membership.

The second Vice President, Dr. Eugene B. Vickery of New Orleans is well known to all of us and has served capably on the Executive Committee many times.

Dr. Eugene St. Martin of Shreveport is third Vice President, and brings to the Executive Committee a valuable experience in his activities in the Caddo Parish Medical Society.

Dr. C. Grenes Cole of New Orleans continues as Secretary-Treasurer to the great

satisfaction of all and to the benefit and security of our organization. His long experience and mature judgment continue to serve the highest interests of our organization, for which the entire membership is deeply grateful.

Dr. W. Robyn Hardy of New Orleans and Dr. O. B. Owens of Alexandria were re-elected as Chairman and Vice-Chairman, respectively, of the Society's House of Delegates. It is to their credit and careful planning that so much of the organization's business can be dispatched in the space of one and a half days, and at the same time, give everyone a feeling of fairness and justice in the conduct of the proceedings.

The place of Dr. Ashton Thomas on the Council was taken by Dr. Cuthbert J. Brown of New Orleans whose experience in the Orleans Parish Medical Society and in the State Society qualify him most admirably for this responsible position.

To the satisfaction of the membership, the other members of the Council remain the same. This body which administers an important portion of the Society's affairs continues to merit the respect and admiration of all. In a period in which its duties and responsibilities seem to be increasing in complexity, we are most fortunate in having such a stable and judicious group.

The responsibilities for the officers of our Society are greater this year than they have been in many other years. We are happy to congratulate them, and also, felicitate ourselves on the selection made by the House of Delegates.

ERRATA

Vol. 108. No. 2 (February 1956) page 64, first paragraph, line 9: Instead of **families**, insert **family units**. On page 65, first column, line 9: Instead of **$8.51**, insert **$80.51**.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ABSTRACTED MINUTES HOUSE OF DELEGATES 1956 ANNUAL MEETING

April 23-25

Minutes of the 1955 meeting of *House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee* since 1955 meeting of House of Delegates approved as recorded.

Special Order

Appointment of Committees: *Credentials*:—*Dr.* R. L. Buck, New Orleans, Chairman; Dr. I. W. Gajan, New Iberia and Dr. Ben Fendler, Alexandria. *President's Report*:—Dr. J. Kelly Stone, New Orleans, Chairman; Dr. C. J. Brown, New Orleans and Dr. Arthur D. Long, Baton Rouge. *Resolutions*:—Dr. J. E. Clayton, Norco, Chairman; Dr. R. E. Gillaspie, New Orleans and Dr. H. H. Hardy, Jr., Alexandria.

Introduction and recognition of new members of the House of Delegates.

Roll of members who died since 1955 meeting read.

Talk by Dr. Louis McDonald Orr, *Vice-Speaker, House of Delegates, American Medical Association.*

Greetings from Dr. G. S. Daly, *Delegate from the Mississippi State Medical Association.*

Introduction of Mr. Paul J. Perret of the firm of Perret and Kalman employed by the Society as Public Relations Counselors.

Introduction of Mr. Charles Matthews appointed by the technical exhibitors to receive suggestions and to collaborate with members of the Society in any way possible for the benefit of the meeting.

Telegram sent to Dr. King Rand wishing for him a speedy recovery.

Appreciation to Rapides Parish Medical Society for entertainment given on Tuesday evening during the meeting.

Greetings from representatives of the *Woman's Auxiliary*: Mrs. Clark Bailey, Third Vice-President, Woman's Auxiliary to the AMA: Mrs. Arthur A. Herold, Parliamentarian, Woman's Auxiliary to the AMA; Mrs. Jules Myron Davidson, Immediate Past President, Woman's Auxiliary to Louisiana State Medical Society; Mrs. W. A. K. Seale, President, Woman's Auxiliary to Louisiana State Medical Society.

Communications

Adams and Reese, Attorneys-at-Law represent-

ing the Society, containing suggestion that *committee be appointed to study* various systems used throughout the United States for *medical defense;* also suggestion that *special committee* be appointed to *investigate systems* used *in re medical testimony*: referred to Executive Committee for action.

Action Taken

Suggestion that members of the State Medical Society in certain positions be given *clearance from the Society for press, radio and television contacts or releases*: Rejected.

Request that the Executive Committee be asked to consider *group plan for malpractice insurance*: Approved.

Membership of State Society and Woman's Auxiliary *in LOSL*: Approved.

Recommendation of Dr. E. L. Leckert and Dr. E. L. Zander in re expiration of term of *appointment* of Dr. Leckert on *Louisiana State Board of Medical Examiners.*

Reports without Recommendations

Following *reports accepted as printed*:—Secretary-Treasurer, Chairman of Council, Councilors: First District, Second District, Third District, Fourth District, Fifth District, Sixth District, Seventh District, Eighth District; Committees: Accreditation of Hospitals, Advisory to Selective Service, Aid to Indigent Members, Arrangements —1956 Annual Meeting, Blood Banks, Budget and Finance, Child Health, Chronic Diseases, Committees, Congressional Matters, Domicile, Gamma Globulin and Salk Vaccine, Geriatrics, History of Medicine in Louisiana, Hospitals, Industrial Health, Lectures for Colored Physicians, Liaison with Louisiana State Nurses' Association, Louisiana Organizations for State Legislation, Malpractice Insurance Rates, Medical and Hospital Service in re Insurance Contracts, Medical Defense, Medical Education, Medical Indigency, Medical Testimony, Mental Health, National Emergency Medical Services, Neuropsychiatric Service at Charity Hospitals, Public Health of the State of Louisiana, Scientific Work, State Hospital Policies, Woman's Auxiliary, Council on Medical Service and Public Relations.

Chairman of *Committee on History of Medicine in Louisiana* requested support of members in preparation of history which will soon be available for purchase.

Report of *Louisiana State Board of Medical Examiners*: resolution to Secretary in re activity.

Reports with Recommendations

President: Referred to Committee on President's Report and report of this committee which recommended approval of all of the following recommendations with comments as indicated, was accepted: 1. Questionnaire to secretaries of parish medical societies and councilor of each district, in regard to the activities of respective societies.—It is believed that this will be very helpful in coordinating activities of parish societies and State Society. 2. Meetings of presidents and secretaries of the parish and district societies to be held semi-annually, to better coordinate efforts for improvement of Organized Medicine.—Suggest one of these meetings be held at or during regular meeting of State Society. 3. District councilors make every effort to better organize the district and parish societies.—Committee feels this is most important. 4. Continue membership in LOSL and the committee representing the State Society be selected from the personnel of the Committee on Public Policy and Legislation. —Heartily endorse.

Past Presidents' Advisory Council: 1. Appointment of a Committee to confer with Governor Long in regard to all medical problems: Approved. 2. Disapproval of scholarships for graduate nurses: Approved. 3. Committee be appointed to investigate what should be done in regard to investigation of Medical Defense cases before State Society agrees to defend case: Referred to Executive Committee. 4. Investigation as to what shall be done about medical testimony: Referred to Executive Committee. Council reported sending messages to Drs. Matas and Rand; also election of Dr. C. M. Horton as President and Dr. Max M. Green as Secretary of Past Presidents' Advisory Council.

Committee on Alcoholism: 1. Louisiana State Medical Society support present plans for treating alcoholics within the State Mental Hygiene program: Approved. 2. Louisiana State Medical Society offer official recognition to Alcoholics Anonymous by approving their activities, recognizing that this is a form of group therapy of proven benefit to the alcoholic: Rejected. 3. Recommendation be made to hospitalization insurance groups that alcoholism be classed as a chronic disease as compensable as any other long-term illness: Rejected. 4. Louisiana State Medical Society unequivocally oppose conduct of any medical program for indigent alcoholics outside of the State Mental Hygiene program: Rejected. 5. Louisiana State Medical Society unequivocally oppose treatment of alcoholics other than indigent, by state, civic or any other "welfare" groups: Rejected.

Committee on American Medical Education Foundation: 1. Members of State Society be urged to make voluntary contributions to AMEF: Approved. 2. Delegates to AMA be instructed to oppose the policy of compulsory assessment to AMEF: Approved.

Cancer Commission: 1. State Society approve Tumor Registry now in operation at Charity Hospital in New Orleans; and Dr. Ambrose H. Storck be appointed by the State Society as its representative to same: Approved. 2. An amount of $500.00 be budgeted for use, if necessary, by the Commission in carrying out its various functions during the forthcoming year: Approved.

Committee on Diabetes: 1. Increased effort by the House of Delegates and presidents of component societies to have each parish and district society form a committee on diabetes: Approved. 2. Diabetic clinics be set up throughout the state: Rejected. 3. Committee on Diabetes for 1956-57 arrange for publication of editorials and articles on diabetes in The Journal of the Louisiana State Medical Society prior to Diabetes Detection Week: Approved. 4. Consideration of diabetic forums for lay people: Rejected.

Committee on Federal Medical Services: 1. Instruct delegates to the AMA to introduce such resolutions as they see fit requesting the AMA to take further vigorous steps nationally to solve the problem of ineligible non-service connected VA medical care: Approved. 2. Alert all members of the State Society as to their responsibilities in approving non-service connected cases, since most of their patients will become potential wards of the taxpayer in a back door socialized system: Approved. 3. Alert all members to bring specific cases to the attention of their congressional delegates with a view to securing remedial legislation: Approved.

Committee on Journal: 1. Members of the State Society be urged to submit scientific material for publication in the Journal: Approved. 2. Dr. Edwin H. Lawson and Dr. E. L. Leckert be retained as members of the Committee on Journal: Approved.

Committee on Maternal Welfare: 1. Consideration of plan submitted for maternal death investigation: Referred to Executive Committee.

Committee on Mediation: 1. Appointment of three or four members of Committee from same area: Referred to Committee on Committees which referred recommendation to Executive Committee. 2. Consideration of appointment of subcommittees in strategic points throughout the State: Referred to Committee on Committees which referred recommendation to Executive Committee.

Committee on Public Policy and Legislation: 1. Services of Mr. Percy J. Landry, Jr. be continued: Approved. *Supplemental Report*: 1. No attempt be made for increase in penalty bill this year: Approved. 2. Work for a commission study bill be continued: Approved. 3. Oppose proposed nursing bill: Approved.

Committee on Resolutions: 1. It is recommended that a copy of these resolutions be sent to each person and organization mentioned and also published in The Journal of the Louisiana State Medical Society: Approved.

Committee on Rural and Urban Health: 1. Committee on Rural and Urban Health be continued: Approved. 2. Appropriation of $1000 be approved for expense of this Committee during 1956: Previously approved by Budget and Finance Committee.

RESOLUTIONS APPROVED

Louisiana State Board of Medical Examiners

Resolution to Secretary complimenting the Board for their activities; copy to be sent to Governor and Governor-elect.

Director of State Department of Health

"WHEREAS, Dr. S. J. Phillips, Director, Louisiana State Department of Health, has been extremely cooperative with the Louisiana State Medical Society in all matters affecting the public's health in the State of Louisiana, and

"WHEREAS, Dr. Phillips has performed his duties in said Department with diligence and efficiency,

"NOW THEREFORE, Be It Resolved by the Louisiana State Medical Society in convention assembled that we do hereby recognize the services of Dr. Phillips in the Louisiana State Department of Health and wish to commend him for his great service in the Department in maintaining and advocating the highest type health standards for the citizens of this State and for his extreme cooperation with the Louisiana State Medical Society in all matters pertaining to the public's health and for the manner in which he has conducted his Department.

"BE IT FURTHER RESOLVED that this resolution be incorporated in the minutes of this meeting."

HR 7225

"WHEREAS, the House of Delegates of the Louisiana State Medical Society strongly opposes the disability payment feature of HR 7225, and

"WHEREAS the Executive Committee of the Louisiana State Medical Society has taken similar position and made suitable representation before the Committee on Finance of the United States Senate;

"BE IT RESOLVED that this House of Delegates confirm the action and position taken by the Executive Committee, and

"BE IT FURTHER RESOLVED that this action be made known to the Senate Finance Committee."

AMENDMENTS ADOPTED

Article IV. (Composition of the Society) Section 1. (Submitted in 1955 by Committee on Revision of Charter, Constitution and By-Laws and approved by Past Presidents Advisory Council and House of Delegates). Active Members—The active members of this Society shall be the active members of the component district and parish medical societies, *who shall be approved by the Executive Committee of the Louisiana State Medical Society;* also physicians otherwise eligible to active membership in any district or parish not having a component society; provided, that after the organization in such district or parish of a component society they shall become members of said society or forfeit membership in the State Society.

Article IV. (Composition of the Society) Sec-

tion 2. (Submitted in 1955 by Committee on Revision of Charter, Constitution and By-Laws and approved by Past Presidents Advisory Council and House of Delegates). Associate members—Associate members of component societies *who shall be approved by the Executive Committee of the Louisiana State Medical Society*, who will be eligible for associate membership; also physicians in the service of the Veterans' Bureau, Army, Navy or Public Health Service of the United States, who are on active duty and stationed in the state may be elected to associate membership when endorsed by two active members in good standing of the Society to whom they are personally known. Such membership is not to have the privileges of executive character or protection of medical defense. Dues for associate membership will be one-half amount of dues for active membership.

Article IV. (Composition of the Society) Section 5. (Submitted in 1955 by Committee on Revision of Charter, Constitution and By-Laws and approved by Past Presidents' Advisory Council and House of Delegates). Intern Members—Physicians serving internships or residencies in accredited hospitals shall during their period of internship or residency be eligible to membership in this Society through their respective component societies as intern members *upon approval of the Executive Committee of the Louisiana State Medical Society.* Thev shall not be entitled to medical defense, nor shall they be eligible to hold office or vote. Dues for intern members shall be $1.00 per year.

ELECTION OF OFFICERS, DELEGATE AND ALTERNATE TO AMA AND COMMITTEES

President-elect — Dr. H. Ashton Thomas, New Orleans

First Vice-President — Dr. H. H. Hardy, Jr., Alexandria

Second Vice-President—Dr. Eugene B. Vickery, New Orleans

Third Vice-President—Dr. Eugene St. Martin, Shreveport

Chairman of House of Delegates—Dr. W. Robyn Hardy, New Orleans

Vice-Chairman of House of Delegates — Dr. O. B. Owens, Alexandria.

Councilor, First District — Dr. C. J. Brown, New Orleans

Councilor, Second District—Dr. J. E. Clayton, Norco

Councilor, Fourth District—Dr. Ralph H Riggs, Shreveport

Councilor, Fifth District—Dr. C. P. Gray, Jr., Monroe

Delegate to AMA (1957 and 1958)— Dr. P. H. Jones, New Orleans

Alternate to Delegate to AMA (1957 and 1958) —Dr. C. B. Odom, New Orleans

Committee on Committees—Dr. E. L. Leckert, New Orleans, Chairman; Dr. J. Kelly Stone, New Orleans; Dr. Wm. E. Barker, Jr., Plaquemine.

Committee on Journal—Dr. E. L. Leckert and Dr. Edwin H. Lawson, both of New Orleans.

Committee on Medieal Defense — Dr. W. A. Ellender, Houma.

Committee on Publie Policy and Legislation—Dr. Arthur D. Long, Baton Rouge, Chairman; Dr. E. L. Zander, New Orleans; Dr. J. E. Clayton, Norco; Dr. Leo Kerne, Thibodaux; Dr. C. E. Boyd, Shreveport; Dr. Arthur E. McKeithen, Hodge; Dr. P. L. McCreary, Lake Charles; Dr. M. B. Pearce, Alexandria.

Committee on Seientific Work—Dr. Sam Hobson, New Orleans; Dr. M. D. Hargrove, Shreveport.

FUTURE ANNUAL MEETINGS

Dates and places:—1957 — New Orleans, May 5-8; 1958 — Shreveport, dates to be selected by Executive Committee.

REPORT OF COMMITTEE ON RESOLUTIONS 1956 ANNUAL MEETING

All members and guests who have participated in the 1956 Annual Meeting held in Alexandria, April 23-25, appreciate very much the efforts and accomplishments of many individuals and groups who have rendered service in connection with this Meeting; therefore, BE IT RESOLVED that the Louisiana State Medical Society express appreciation for assistance by the following:

Dr. H. H. Hardy, Jr. and personnel of Committees on Arrangements and all members of the Rapides Parish Medical Society, hosts to the Meeting.

Rev. Sam Reeves who offered the invocation at the official opening meeting of the Society.

Hon. W. George Bowdon, Jr., Mayor of the City of Alexandria, for his cordial welcome to the City.

Dr. Louis McDonald Orr or Orlando, Florida, for the annual oration presented at the opening meeting and also for his informative address before the House of Delegates.

The following out-of-state guests who participated in the scientific program:

Dr. Alan G. Cazort—Little Rock, Arkansas
Dr. Wilburt C. Davison—Durham, North Carolina
Dr. C. D. Head, Jr.—Denton, Texas
Dr. James S. Hunter, Jr.—Rochester, Minnesota
Dr. Benjamin Manchester—Washington, D. C.
Dr. John H. Moyer—Houston, Texas
Dr. Eugene P. Pendergrass—Philadelphia, Pennsylvania
Dr. Edwin L. Rippy—Dallas, Texas
Dr. H. William Scott—Nashville, Tennessee

The Alexandria Chamber of Commerce for cooperation in connection with many phases of the meeting and particularly for Mrs. Hill who furnished assistance at the registration desk by

securing the services of Miss Doris Ann Vellotta and Mrs. Christine Britz.

Mr. Paul J. Perret and Mr. Paul R. Kalman, Jr, who have rendered most valuable service to the organization during the past several months, as public relations counselors, and have given much time and energy in their efforts to secure adequate coverage of the meeting in the press and through the radio and TV stations.

The Alexandria Daily Town Talk and other newspapers throughout the State for publicity prior to and during the time of the meeting.

Radio Stations KALB, KSYL and KALB-TV for time given on these stations.

Scientific exhibitors whose exhibits added much interest to the meeting.

Pharmaceutical, surgical and other companies which had technical exhibits.

All companies which purchased space for advertising in the program with special thanks to Dr. C. J. Ellington, Jr. who secured contracts from many local advertisers.

The Hotel Bentley, headquarters for the meeting, for excellent service rendered members attending the meeting as well as facilities for various sessions in connection with the meeting; also other hotels and motels in Alexandria for accommodations furnished. Mr. Joe Spera, Bell Captain at the Hotel Bentley, who has rendered exceptional service prior to and during the time of the meeting.

The Alexandria Golf and Country Club for facilities furnished.

Hospitals in Alexandria and Pineville which offered medical tours during the time of the meeting.

Dr. Edwin H. Lawson, Secretary of the Louisiana State Board of Medical Examiners, for his report submitted to the House of Delegates.

Officers and members of the Woman's Auxiliary who furnished an interesting program for members of the Auxiliary.

Mr. Percy J. Landry, Jr., legislative consultant who has been most helpful to the medical profession through his contacts with members of the legislature in behalf of the doctors of the state and his cooperation and assistance to the officers and committees of the Society in such matters; also for his informative talk before the House of Delegates.

Dr. Max M. Green who has served so capably during the past year as President of this organization.

Dr. W. Robyn Hardy who handled subjects before the House of Delegates in a most expeditious manner.

Dr. C. Grenes Cole, Secretary-Treasurer, who has continued to render invaluable service to the organization.

Miss Annie Mae Shoemaker, Assistant Secretary-Treasurer, and the entire secretarial staff for their efficient handling of details prior to and during the time of the meeting.

RECOMMENDATION

It is recommended that a copy of these resolutions be sent to each person and organization mentioned and also be published in the Journal of the Louisiana State Medical Society.

R. E. GILLASPIE, M. D., Member
H. H. HARDY, JR., M. D., Member
J. E. CLAYTON, M. D., Chairman

REPORT OF COMMITTEE ON MEDICAL DEFENSE

In the past twelve months this Committee has received four requests for assistance in defense against legal action for alleged malpractice. The Committee unanimously agreed to defend these suits, however none of these cases has yet come to trial.

This number represents a noticeable reduction in the annual number of such requests which in the three preceding periods were six, six and eight. Let us hope that this trend will continue.

Two cases, reported previously, have been settled by compromise agreement, which action was recommended by our attorney. Also one suit, instituted in 1954, resulted in a verdict favorable to the defendant.

All other cases which have not been previously reported as finally disposed of are awaiting trial. This includes one which was appealed by the plaintiff.

C. B. ERICKSON, M. D., Chairman

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

CARDIOVASCULAR SEMINAR MISSISSIPPI HEART ASSOCIATION

The Annual Cardiovascular Seminar, sponsored by the Mississippi Heart Association, will be held at the University Medical Center in Jackson, Miss., June 13-14-15.

Lecturers for the course will be Dr. Rachel Ash, Dr. C. Walton Lillehei, Dr. Franklin D. Johnston, Dr. Michael DeBakey and Dr. Lewis Dexter.

Case presentations will be made by Dr. Wesley Lake of Pass Christian, Dr. John Wafer of Shreveport, La., and Dr. Robert Sloan of the University Medical Center.

Inquiries may be addressed to the Public Information Department, University Medical Center, Jackson.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY ELECTS NEW OFFICERS FOR 1956 - 1957

The twentieth annual meeting of The New Orleans Graduate Medical Assembly will be held March 11-14, 1957, headquarters at the Municipal Auditorium.

The following officers and members of the Executive Committee have been elected for this year:

Dr. Eugene H. Countiss, President
Dr. Charles L. Brown, President-elect
Dr. Edwin L. Zander, First Vice-President
Dr. Barrett Kennedy, Second Vice-President
Dr. Joseph N. Ané, Third Vice-President
Dr. Maurice E. St. Martin, Secretary
Dr. Ralph M. Hartwell, Treasurer
Dr. Ambrose H. Storck, Director of Program
Dr. V. Medd Henington, Assistant Director of Program
Dr. Marshall L. Michel, Jr., Assistant Director of Program

Executive Committee

Dr. Donovan C. Browne (retiring President)
Dr. George D. Feldner
Dr. W. E. Kittredge
Dr. George C. Battalora
Dr. Sam Hobson

ENDOCRINE SOCIETY TO HOLD EIGHTH ANNUAL POSTGRADUATE ASSEMBLY

The Eighth Annual Postgraduate Assembly of the Endocrine Society, in cooperation with The University of Texas Postgraduate School of Medicine and The Unversity of Texas M. D. Anderson Hospital and Tumor Institute, will hold its 8th Annual Assembly at The University of Texas M. D. Anderson Hospital and Tumor Institute in Houston, Texas on October 22-27, 1956.

The tuition fee for this course is $100.00. Inquiries should be directed to:

The University of Texas, Postgraduate School of Medicine, Texas Medical Center, Houston 25, Texas.

RADIOLOGICAL SOCIETY ELECTS NEW OFFICERS

On April 22, 1956 the Radiological Society of Louisiana held its annual meeting and the following officers were elected:

President, J. V. Hopkins, Jr., M. D., New Orleans; Vice-President, W. H. Carroll, M. D., Shreveport; Secretary - Treasurer, W. S. Neal, M. D., New Orleans.

CHEMICAL POISONING TREATMENT OUTLINED

Physicians today were advised on methods of treating organic phosphate poisoning, which has become increasingly prevalent in recent years through the misuse of some insecticides.

The potential use of these same phosphate compounds as chemical warfare agents also makes it important that physicians become better acquainted with ways of diagnosing and treating such poisoning, two University of Illinois scientists said in the Nov. 19 Journal of the

American Medical Association.

The compounds are among the most powerful insecticides yet developed and extensive agricultural use has resulted in many accidents and deaths, they said.

The best known methods of treatment include the administration of the drug atropine sulphate to control nervous system effects; artificial respiration to treat respiratory failure, and general treatment for other symptoms.

In a review of literature on the subject, they found that atropine must be given as soon as possible in larger than normal doses in order to combat the poisoning. The review of 25 cases showed a direct relationship between survival, the amount of atropine given, and the speed of administration, they said.

DRUG PRICES

In the last fifteen years drug prices have trailed far behind the spiraling cost of living, Eugene N. Beesley, president of Eli Lilly and Company, told leading pharmacy educators of the United States, Canada, and Puerto Rico at an industrial seminar September 1.

Beesley pointed out that United States government figures show the total consumer price index increased 77.1 percent from 1939 through 1954 while the drug and prescription price index went up only 32.9 percent.

Representatives from eighty-three pharmacy colleges in the three countries and from pharmacy organizations attended a five-day industrial seminar at Lilly from August 29 through September 1.

Speaking at a dinner for the pharmacy leaders, Beesley pointed out that in 1954 the American people were spending only 0.64 percent of disposable personal income (income after taxes) for drugs and prescriptions as compared to 0.87 percent spent in 1939.

"Comparing it in another way," he said, "disposable income in the fifteen-year period went up 262 percent, whereas personal expenditures for drug preparations went up 167 percent. Therefore, the conclusion is clear that people in the United States today are not spending as large a proportion of their income for prescriptions and drugs as they did in 1939."

SKIN PLANING FOR ACNE SCARS HAS LIMITATIONS

While skin planing is the best treatment yet devised to improve acne scars, it cannot produce "miraculous new skin," according to a report in the Nov. 26 Journal of the American Medical Association.

The report, prepared by two dermatologists, Drs. Herbert Rattner, Chicago, and Charles R. Rein, New York, was written at the request of the A.M.A.'s Committee on Cosmetics.

An accompanying Jaurnal editorial said, "Enthusiasm for this method should not be discouraged, but its limitations must be clearly understood by the physician and the patient. Dermabrasion can improve skin appearance in many patients; it cannot help others."

The operation, first introduced in 1952, is new in technique, though not in principle. The skin is "frozen" and then abraded with a motor-driven wire brush, which is manipulated in short strokes. The procedure is repeated, progressing from area to area, until all the scars have been planed away. More than one treatment is often necessary.

NEW PENICILLIN

A new penicillin which is acid-resistant and gives significantly higher blood levels in oral doses than penicillin—G is being introduced by Eli Lilly and Company.

Marketed as 'V-Cillin' (Penicillin V, Lilly), the new antibiotic is the acid form of phenoxymethylpenicillin. The sodium salt of this penicillin first was described by Behrens and his associates of the Lilly Research Laboratories. It was one among a series of new crystalline biosynthetic penicillins discovered by the Lilly scientists. The solid acid form of phenoxymethylpenicillin was first prepared by scientists of Biochemie, of Austria.

Because 'V-Cillin' is highly stable in the stomach acids, more of it is made available for absorption. Thus, the clinical trials show therapeutic concentrations of 'V-Cillin' in the blood are not only higher but are achieved more rapidly and are more prolonged than those of penicillin—G.

TUBERCULIN TEST CALLED KEY TO TB PROBLEM

"The tuberculin test has become the master key to the tuberculous problem," four Minnesota researchers have reported.

After a 28-year study of mass tuberculin testing of school children, they made two predictions: that if new antimicrobial drugs work, TB may be cured for the first time in history; and that mass testing may mean "tracking down and destroying the last tubercle bacilli."

The injection of a small amount of tuberculin reveals the presence of tuberculosis earlier than any other method, they said in the Sept. 17 Journal of the American Medical Association. It does so with "uncanny accuracy," and before signs are evident through chest x-ray, they said.

They explained that infected persons become "reactors" to the tests within a few weeks after infection. In this early stage antimicrobial drugs may destroy the bacilli. Later, when the disease reaches the stage where x-ray shows its presence, the drugs may not destroy all bacilli. If non-reactors are tested periodically they can be

caught and treated soon after the bacilli "invade" the body.

The best time to start routine tuberculin testing is in childhood, and a widespread movement now is under way to test school children everywhere. Eventually, they said, there will be "no alternative" but periodical testing of all nonreactors.

WIDER KNOWLEDGE OF CHEMICAL HEALTH HAZARDS NEEDED

The Committee on Toxicology of the American Medical Association has embarked on a program to acquaint the public with some of the dangers of the many chemical products used in the home, on the farm, and in industry.

Understanding of the uses and potential dangers of the almost quarter million different brand name chemical products is needed to prevent the estimated 3,300 accidental poison deaths which result each year from misuse of chemicals.

The array is so large and so many combinations of chemicals are possible that no complete catalogue of all available products has been made, the committee said.

As part of its campaign, the committee sponsored a symposium on health hazards of chemicals Dec. 29 before the pharmacy section at the annual meeting of the American Association for the Advancement of Science at Atlanta, Ga.

NEOMYCIN MOST SUCCESSFUL IN ELIMINATING "BODY ODOR"

Myciguent and Mycimist, topical preparations containing the antibiotic neomycin, were shown to be 100 percent effective in eliminating common "underarm" odor, according to a clinical report in the Journal of the American Medical Association.

Drs. Walter B. Shelley and Milton M. Cahn of Philadelphia declare that in twenty cases, "the daily application of neomycin cream or lotion was completely effective in preventing the appearance of any axillary (armpit) odor in all of the subjects tested."

"Only repeated applications of neomycin in a concentration of 3.5 mg. of base per gram or more will prevent this formation of odor in the axilla," the physicians stress. The experiment indicates that axillary odor results from the action of bacteria on apocrine sweat. Without medication the odor appeared in all men tested within 18 hours after simple washing.

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

ORLEANS PARISH

The following is a complete list of the officers and committee chairmen for the Woman's Auxiliary to the Orleans Parish Medical Society for the year 1956-1957:

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BOOK REVIEWS

Twentieth Century Psychiatry; by William A. White, M. D., New York, W. W. Norton & Company, Inc., 1936 (Reprint 1947) Pp. 159, Price $2.50.

Dr. William A. White was one of the deans and pioneers of American psychiatry. This book is based on his Thomas William Salmon Memorial Lectures and is an effort to elaborate on psychiatry's contribution to the various sociological, philosophical, and ethical standards of our present culture. While the volume provides interesting reading, it does not provide any additional psychiatrical information or concepts that have not been previously covered by many other authors.

It discusses the early tribulations of psychiatry in the latter part of the nineteenth century when it was just beginning to develop toward what is our present day standards. The author presents an eclectic viewpoint of the various contributions of the different schools of psychiatry. His cardinal "crusade" is to emphasize psychiatry's contribution in the psychology of interhuman relationships.

In closing Dr. White lists the three directions to which he looks for progress as a result of psychiatric developments.

1. In general medicine—the wider and more informed recognition that the relationship between patient and physician constitutes the most important tool of therapy.

2. In general science—the recognition that investigations of the neurological and psychological foundations of such concepts as space and time constitute an all-important avenue of approach to the elucidation of their deeper meanings and significances.

3. In the field of sociology—the study of the phenomena of and the factors that lie behind war and peace.

GENE L. USDIN, M. D.

Manual of Clinical Mycology; by N. F. Conant, and others, 2d ed., Philadelphia, Pa., W. B. Saunders Co., 1954, Pp. 456, Price $6.50.

The second edition of this valuable work in medical mycology follows closely the plan of the 1st edition. Notable new features include considerable additional material on the epidemiology, immunology, and serology of the systemic mycoses with particular reference to histoplasmosis and blastomycosis. In the section on chromoblastomycosis additional information is introduced on the etiology of this infection and on the mycology of the pathogenic species of the Hormodendrum group. A number of species of the dermatophytes have been reduced to synonymy, thus further simplifying the problem of identification within this group. New therapeutic measures as well as new methods of staining fungi in tissues are also discussed.

JOHN D. SCHNEIDAU, JR., M. S.

Counseling in Medical Genetics; by Sheldon C. Reed, Philadelphia, Pa., W. B. Saunders Company, 1955, pp. 268, Price $4.00.

This volume, the first to appear in the new field of Counseling in Medical Genetics, is based on the author's experience in the Heredity Clinic at the University of Minnesota. This clinic is said to have handled more requests for help on genetic problems than any other on this continent. Written for the physician, the author does not assume for the reader, specialized training in genetics. Only those genetic conditions which occur with an incidence of more than 1 in 1000 are considered, but a list of more rare genetic diseases as compiled by Fraser, in 1954, is included as an appendix. Illustrative examples of actual genetic problems and their care, are given at the end of each chapter. This book should be in the hands of every physician.

H. WARNER KLOEPFER, Ph. D.

Differential Diagnosis of Leukoplakia, Leukokeratosis, and Cancer in the Mouth; by Ashton L. Welsh, M. D., Springfield, Illinois, Charles C Thomas, pages 62, Price $2.50.

This brief publication describes in a lucid manner the clinical and pathological changes associated with leukoplakia, leukokeratosis, and cancer in the mouth. The author then describes some of the more common clinical entities which must be included in the differential diagnosis.

Emphasis is placed upon the early recognition of precancerous oral lesions. This book should be of help to both the physician and the dentist.

MARVIN E. CHERNOSKY, M. D.

PUBLICATIONS RECEIVED

Doubleday & Co., Inc., Garden City, N. Y.: Bellevue is My Home, by Salvatore R. Cutolo, M. D., with Arthur and Barbara Gelb; The Menninger Story by Walker Winslow.

The C. V. Mosby Co., St. Louis: Campbell's Operative Orthopaedics, Volumes 1 and 2, by J. S. Speed, M. D., and Robert A. Knight, M. D., (3rd edit.).

Philosophical Library, N. Y.: A Dictionary of Dietetics, by Rhoda Ellis, Ph.D.

W. B. Saunders Co., Phila.: Textbook of Medical Physiology, by Arthur C. Guyton, M. D.; The Office Assistant, in Medical or Dental Practice, by Portia M. Frederick, and Carol Towner; The Management of Menstrual Disorders, by C. Frederic Fluhmann, M.D.

Springer Publishing Co., Inc., N. Y.: Laboratory Tests in Common Use, by Solomon Garb, M. D.; Handbook of Physical Therapy, by Robert Shestack, Ph.G.R.P., P.T.R.

IMPORTANT RESEARCH CONTRIBUTION

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Investigations with Nilevar show that nitrogen, potassium and phosphorus are retained in ratios indicating protein anabolism. Nilevar is thus the first steroid which is primarily anabolic and which provides a practical means of meeting the numerous demands for protein synthesis.

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DOSAGE • The daily *adult* dose is three to five Nilevar tablets (30 to 50 mg.) but up to 100 mg. may be administered. For *children* the daily dose is 1 to 1.5 mg. per kilogram of body weight. Individual dosages depend on need and response to therapy. Nilevar is available in 10 mg. tablets. G. D. Searle & Co., Research in the Service of Medicine.

INDICATIONS:

Nilevar is indicated in the vast area of surgical, traumatic and disease states in which protein anabolism is desirable for hastening recovery. The specific indications are:

1. **Preparation for elective surgery.**
2. **Recovery from surgery.**
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6. **Domiciliary care of decubitus ulcers.**
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For example, Albertson and Trout[1] have reported successful results with tetracycline (ACHROMYCIN) in diverticulitis, gangrene of the gall bladder, tubo-ovarian abscess, and retropharyngeal abscess. Prigot and his associates[2] used tetracycline in successfully treating patients with subcutaneous abscesses, cellulitis, carbuncles, infected lacerations, and other conditions.

As a prophylactic and as a therapeutic, ACHROMYCIN has shown its great worth to surgeons, as well as to internists, obstetricians, and physicians in every branch of medicine. This modern antibiotic offers rapid diffusion and penetration, quick development of effective blood levels, prompt control over a wide range of organisms, minimal side effects. There are 21 dosage forms to suit every need, every patient, including

ACHROMYCIN SF

ACHROMYCIN with STRESS FORMULA VITAMINS. Broad-range antibiotic action to fight infection; important vitamins to help speed normal recovery. In *dry-filled, sealed* capsules for rapid and complete absorption, elimination of aftertaste.



dry- filled sealed capsules

[1]Albertson, H.A. and Trout, H. H., Jr.: *Antibiotics Annual* 1954-55, Medical Encyclopedia, Inc., New York, N.Y., 1955, pp. 599-602.

[2]Prigot, A.; Whitaker, J. C.; Shidlovsky, B. A., and Marmell, M.: *ibid*, pp. 603-607.

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For significant relief in myositis, osteoarthritis, backstrain, and related conditions marked by:

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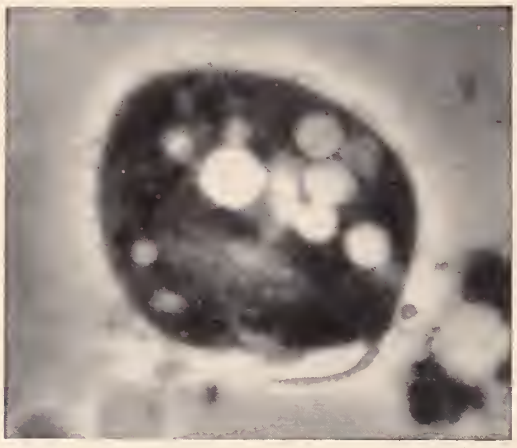
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with muscle-relaxing action
...relieves tension

DAVIS TECHNIQUE USING VAGISEC® JELLY AND LIQUID EXPOSES AND EXPLODES TRICHOMONADS HIDDEN AWAY IN RUGAE



Phase-contrast microscope shows a trichomonad in a mucinous vaginal smear.

MANY trichomonacides failed in years past largely because they reached only the parasites swimming freely in the vaginal canal—not those hiding under epithelial cells deep among the vaginal rugae. In fact, some agents actually coagulated the albuminous material lining the surface and protected the trichomonads![1]

Success at last. Today, however, you can overcome this problem because VAGISEC jelly and liquid quickly penetrate to trichomonads' hideaways. You can now treat vaginal trichomoniasis successfully, using the Davis technique. Carl Henry Davis, M.D., eminent gynecologist and author, and C. G. Grand, research physiologist, introduced VAGISEC liquid as "Carlendacide" and had it tested by over 100 well-known obstetricians and gynecologists. Dr. Davis states, ". . . over 90% of apparent cures have been obtained. . . ."[2]

Overpowering action. A chelating agent and two surface-acting agents in VAGISEC liquid, combined in balanced blend, not only reach trichomonads but explode them![3] The three chemicals act to weaken the parasites' cell membranes, to remove waxes and lipids, and to denature the protein. With their cell walls destroyed, trichomonads imbibe water, swell and explode.

The Davis technique.† Dr. Davis recommends a combination of office treatments and home treatments, using both VAGISEC jelly and liquid in home treatments. "A few women have infected cervical, vestibular or urethral glands and require other types of treatment. . . ."[2] It is well to remember the role of the male as carrier of the organism and prescribe protection against re-infection from the husband.[2]

Office treatment. Expose vagina with speculum. Wipe walls dry with cotton sponges and wash thoroughly for about three minutes with a 1:100 dilution of VAGISEC liquid. Remove excess fluid with cotton sponges. Dr. Davis recommends six office treatments, three the first week, two the second, and one the third.

Home treatment. Patient douches with solution of VAGISEC liquid every night or morning and then inserts VAGISEC jelly. Treatment is continued through two menstrual periods, but is omitted on office treatment days. Continued douching two or three times a week after therapeutic success helps prevent re-infection. Douching is contraindicated in pregnancy.

Summary. The unique action of a combination of three agents comprising VAGISEC liquid reaches and explodes hidden as well as surface trichomonads. This therapy has a high rate of success and results in fewer flare-ups. VAGISEC jelly and liquid are non-toxic and non-irritating, and leave no messy discharge or stain.

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Active ingredients: Polyoxyethylene nonyl phenol, Sodium ethylene diamine tetra-acetate, Sodium dioctyl sulfosuccinate. In addition, VAGISEC jelly contains Boric acid, Alcohol 5% by weight.

1. Davis, C. H.: Am. J. Obst. & Gynec. 68:559 (Aug.) 1954.
2. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955.
3. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955.

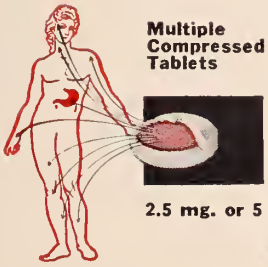
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(Buffered Prednisone)

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Multiple Compressed Tablets

Clinical evidence[1, 2, 3] indicates that to augment the therapeutic advantages of prednisone and prednisolone, antacids should be *routinely* co-administered to minimize gastric distress.

2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

References: 1. Boland, E. W., *J.A.M.A.* 160:613, February 25, 1956. 2. Margolis, H. M., *et al.* *J.A.M.A.* 158:454, June 11, 1955. 3. Bollet, A. J., *et al.* *J.A.M.A.* 158:459, June 11, 1955.

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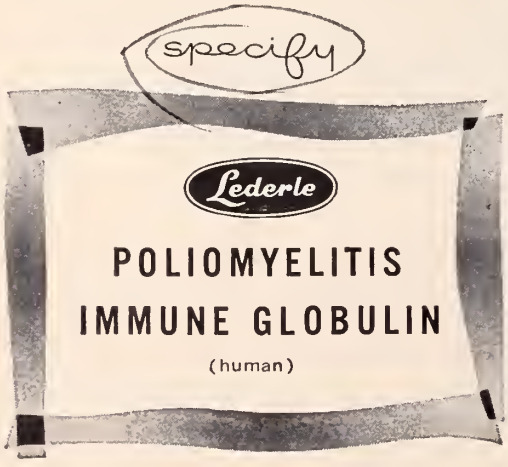
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*Fishberg, A. M.: Hypertension and Nephritis, ed. 5, Philadelphia, Lea & Febiger, 1954, pp. 177-178.

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The dilution of Pelargon—for normal infants as well as prematures—2 level tablespoonfuls to 3 fluid ounces of water—may remain constant from birth throughout the period of formula feeding. No complicated dilution schedules.

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The new improved Pelargon goes into solution quickly. Preparation is simple and easy—saves time for the mother.

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A *nutritionally complete* milk formula for infant feeding prepared from spray-dried pasteurized, homogenized, whole milk modified by the addition of dextrins-maltose, sucrose, precooked starch, and lactic acid, and fortified with vitamins and iron. Pelargon provides adequate protein and all known essential vitamins and minerals required by the infant. No supplementation necessary.



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Because it is so easy to digest and because it forms liquid gastric curds with zero tension, Pelargon is outstanding in the feeding of premature and marasmic infants.

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APPROXIMATE COMPOSITION	POWDER	NORMAL DILUTION
Fat	17.0%	2.7%
Protein	16.5	2.6
Carbohydrates (total)	57.0	9.1
Lactose	23.5%	3.7%
Dextrins-maltose (from corn and barley malt)	12.5	2.0
Sugar (sucrose)	12.5	2.0
Starch, precooked (corn)	8.5	1.4
Lactic Acid	2.2	0.4
Minerals*	4.3	0.7
Moisture	3.0	84.5

*Includes Calcium 0.7%; Phosphorus 0.5%; Iron 0.005%.

VITAMIN CONTENT	Per Oz. Powder	Per Qt. Normal Dilution
Vitamin A (palmitate)	375 U.S.P. units	2130 U.S.P. units
Vitamin D_3 (irradiated 7-dehydro-cholesterol)	100 U.S.P. units	568 U.S.P. units
Thiamine	0.08 mg.	0.45 mg.
Riboflavin	0.13 mg.	0.74 mg.
Niacin	0.93 mg.	5.3 mg.
Vitamin B_6	0.05 mg.	0.28 mg.
Ascorbic Acid	8.0 mg.	45.00 mg.

CALORIC VALUES	
Per ounce Pelargon powder	130
Per level tablespoonful (8.5 Gm.)	39
Per fluid ounce, normal dilution	23

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THIS IS HOW

Rauwiloid®

The original alseroxylon fraction of India-grown Rauwolfia serpentina, Benth.

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Higher Clinical Efficacy

Rauwiloid represents the balanced, mutually potentiated actions[1] of several Rauwolfia alkaloids, of which reserpine and the equally antihypertensive rescinnamine have been isolated. Hence, contrary to reports from some quarters, reserpine is not the only active principle of the Rauwolfia plant. Rauwiloid contains *all* the active principles, but it is freed of the undesirable dross of the crude Rauwolfia root.

Greater Safety

No single commercially available alkaloid can provide the full efficacy of Rauwiloid together with Rauwiloid's low incidence/low intensity of side actions.[2] For example, mental depression is "much less frequent with alseroxylon..."[2] Rauwiloid is safely used even in the presence of cardiac, renal, and cerebrovascular complications of hypertension.

Antihypertensive

Bradycrotic

Tranquilizing

Simplified Dosage

Dosage is simple...merely two 2 mg. tablets at bedtime. When desired effect has been obtained, one tablet per day often suffices.

1. Cronheim, G., and Toekes, I. M.: Comparison of Sedative Properties of Single Alkaloids of Rauwolfia and Their Mixtures, Meet. Am. Soc. Pharmacol. & Exper. Therap., Iowa City, Iowa, Sept. 5, 1955.

2. Moyer, J. H.; Dennis, E., and Ford, R.: Drug Therapy (Rauwolfia) of Hypertension. II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension, A.M.A. Arch. Int. Med. *96*:530 (Oct.) 1955.

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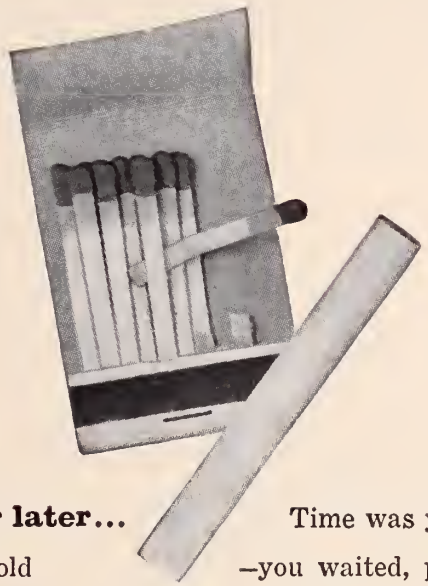
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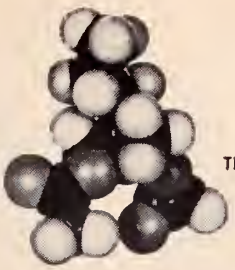
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1. Johnston, T. G., and Cazort, A. G.: J. Allergy 27:90, 1956. 2. Schwartz, E.: New York J. Med. 56:570, 1956. 3. Schiller, I. W., et al.: J. Allergy 27:96, 1956.

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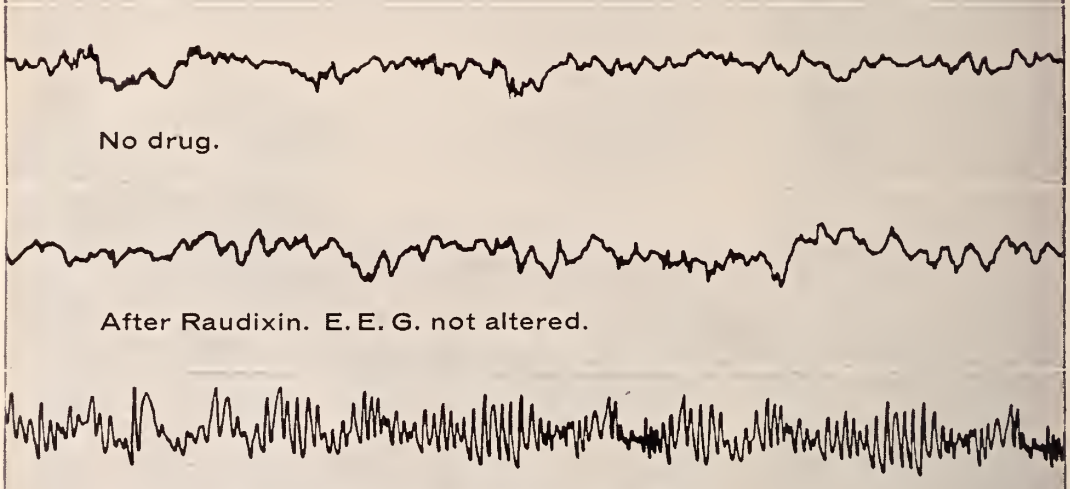
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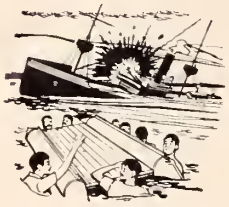
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* From CANCER NEWS, Vol. X, No. 2

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1. Karp, M., et al.: Am. J. Obst. & Gynec. 69:780 (April) 1955.

JULY, 1956

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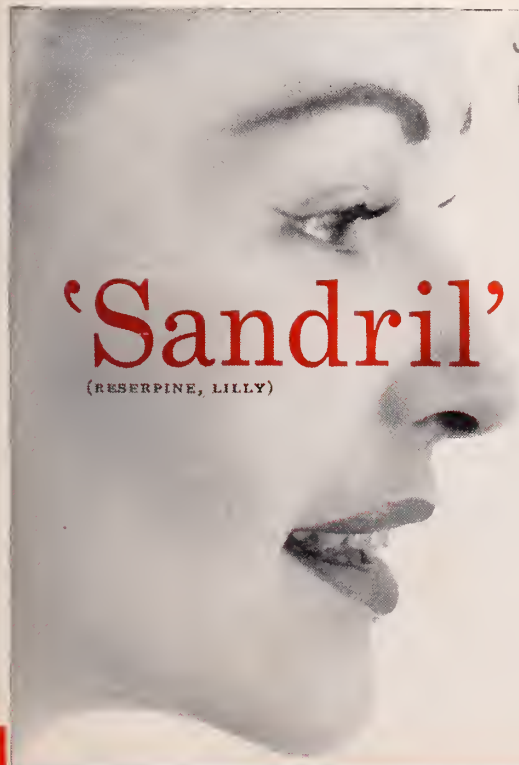
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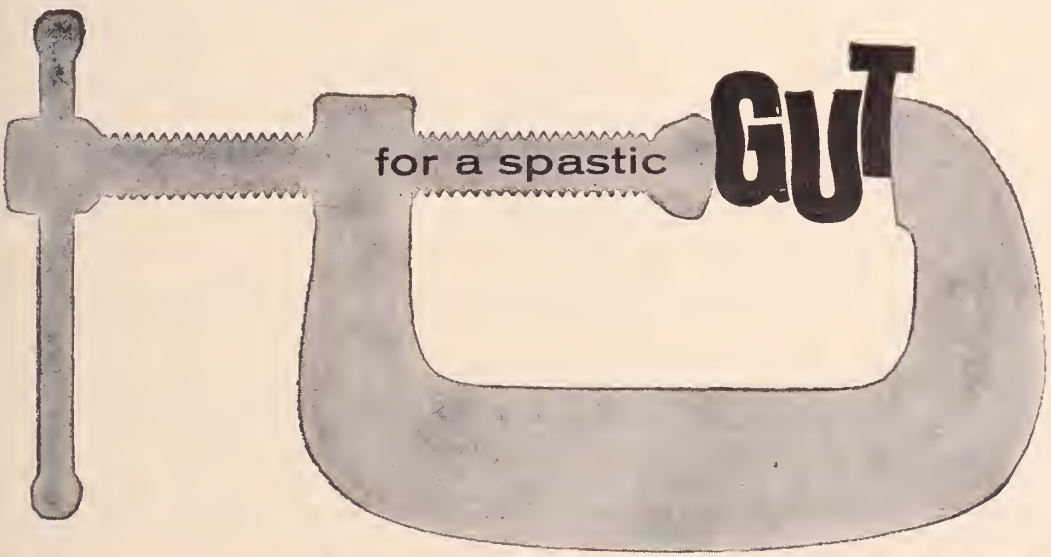
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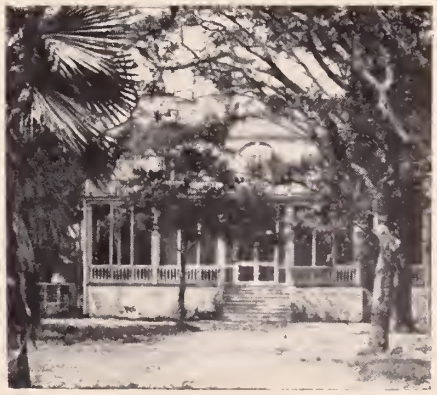
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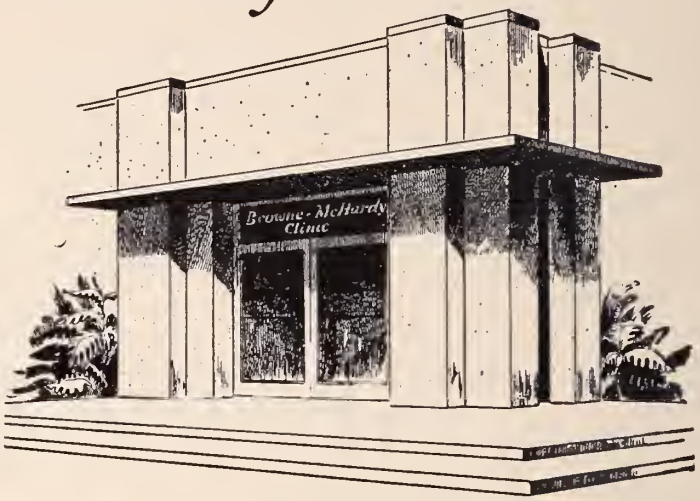


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1. Fazekas, J.F., et al.: J.A.M.A. **161**:46 (May 5) 1956. 2. Mitchell, E.H.: J.A.M.A. **161**:44 (May 5) 1956.

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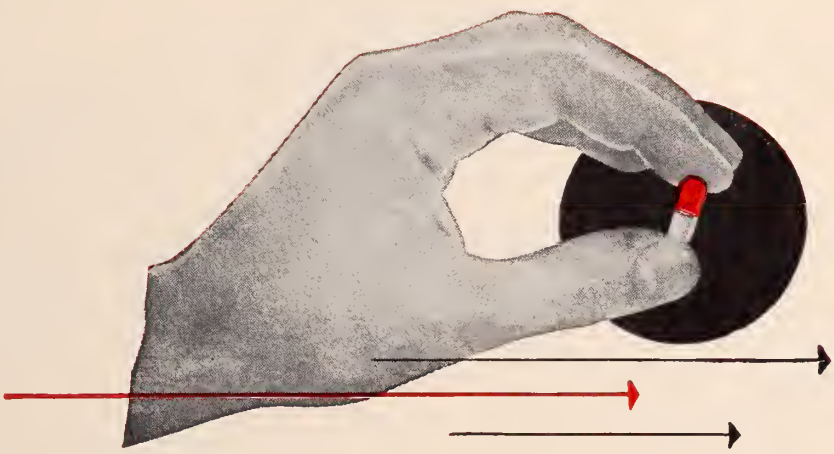
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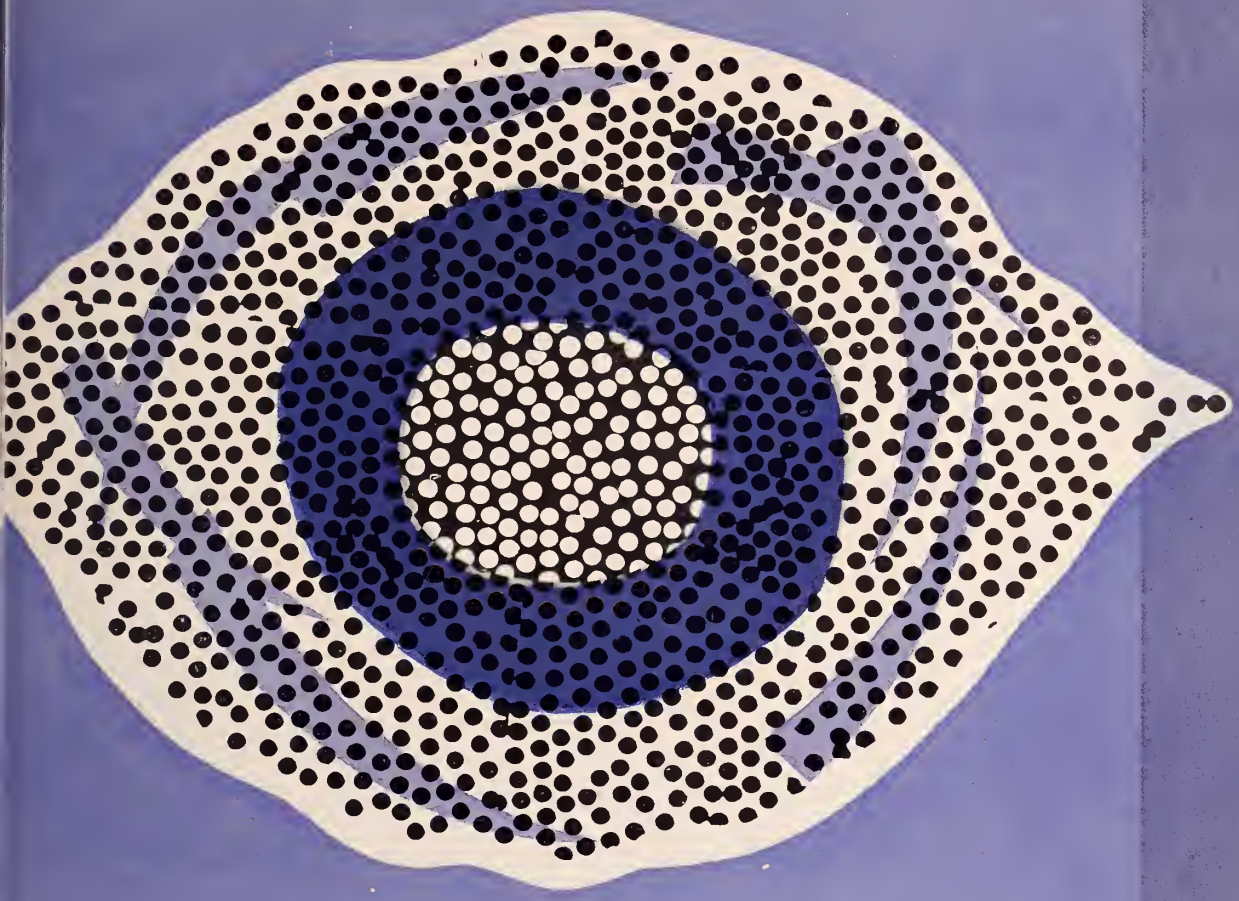
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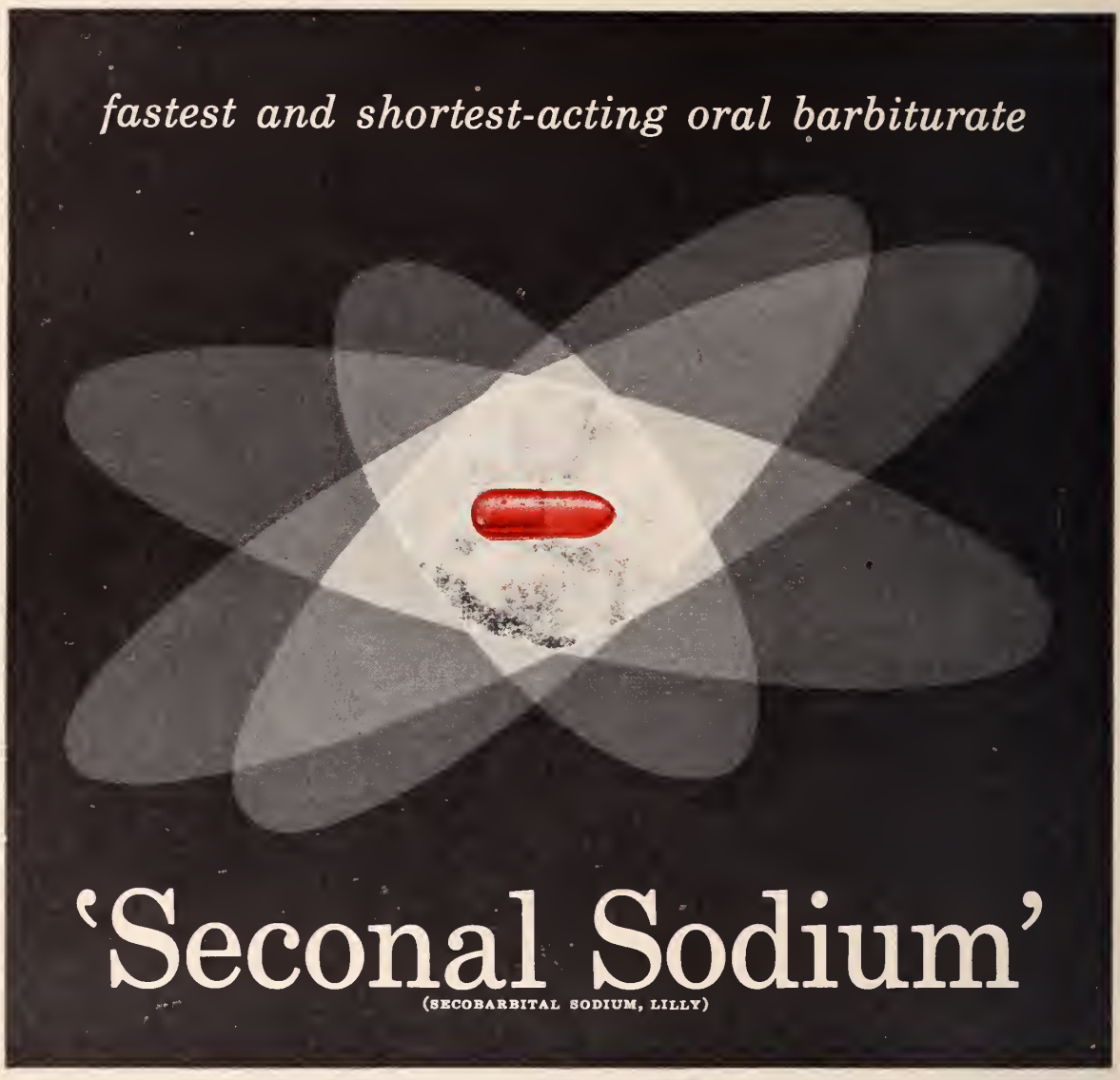
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THE OUT-PATIENT MANAGEMENT OF HYPERTENSION *

JOHN H. MOYER, M. D. †
HOUSTON, TEXAS

Management of hypertension is a daily responsibility with most physicians. During the past few years, new drugs have been developed which are capable of lowering specifically the blood pressure in hypertensive patients. There is no universal opinion concerning indications and contraindications for such agents. Too frequently, individual investigators, or groups, have been overly interested in defending specific drugs or therapeutic regimens. As a result, not enough attention has been devoted to the development of an over-all approach to the treatment of hypertension, and to determining when the effective and useful agents should be used. This report presents an outline of the method for using the most effective antihypertensive agents for the treatment of hypertensive vascular disease.

The known antihypertensive drugs reduce the blood pressure either by blocking vasoconstrictor impulses centrally, or by blocking the transmission of these impulses within the sympathetic nervous system. Since there are many individual differences in the pharmacology of these agents, the proper drug should be selected, essentially on the basis of the severity of the disease. The therapist should have an understanding of the physiology of the autonomic nervous system, the pathological physiology of hypertension, and the pharmacodynamics of autonomic drugs, in order to use autonomic blocking agents effectively. The potential benefits from therapy depend, for the most part, upon selection of the appropriate drug for each individual clinical situation, plus careful attention to dose titration and adequate follow-up.

PHARMACOLOGY OF HYPERTENSION

Until such time as the complete pathogenesis of hypertension is understood completely, treatment must remain upon an empirical and symptomatic basis. It is well established that elevation of the blood pressure produces vascular damage and symptoms therefrom, regardless of the etiology of the disease. Evidence is now accumulating rapidly which indicates that many complications can be prevented, or improved when present, by effective reduction in blood pressure with the currently available antihypertensive agents. It follows naturally, that as a general rule, the most notable indication for antihypertensive agents will be a significant elevation in the diastolic blood pressure, particularly if accompanied by evidence of vascular deterioration.

Figure 1A presents a diagramatic representation of the regulation of blood pressure by the sympathetic nervous system in the normal individual. Numerous

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, Alexandria, April 25, 1956.

† Baylor University College of Medicine, Houston, Texas.

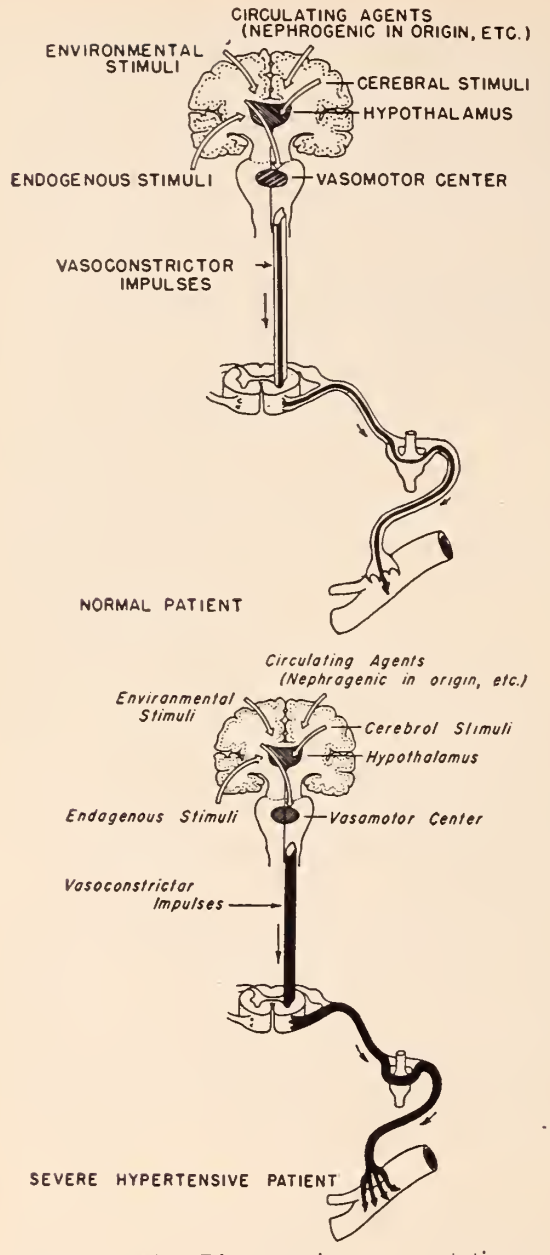


Figure 1(A).—Diagramatic representation of method by which the sympathetic nervous system operates to regulate the blood pressure in a normal individual. (B) The patient with severe hypertension shows a marked increase in vasoconstriction in response to the outflow of vasoconstrictor impulses over sympathetic nervous system. (Courtesy Am. J. Med. Sci. 230:33, 1955).

nervous influences come to play on the autonomic nervous system in the brain, at the hypothalamic level. These are integrated and finally emerge via the vasoregulatory centers over the sympathetic nervous system as vasoconstrictor impulses, and thence travel to the blood vessels producing a vasoconstriction which maintains the blood pressure. In Figure 1B we have represented the patient with severe essential hypertension. Under such circumstances, there is either a great increase in the outflow of vasoconstrictor impulses, or increased responsiveness of the blood vessels to a normal outflow of vasoconstrictor impulses. As a result, the arterioles throughout the body constrict and thus increase peripheral resistance. This is followed by a rise in blood pressure to hypertensive levels. The cardiac output and blood volume are usually not affected.

When the blood pressure becomes elevated in a hypertensive patient, it can be lowered by depressing the outflow of vasoconstrictor impulses along the sympathetic nervous system. This can be done centrally (hydralazine, veratrum, and rauwolfia), at the sympathetic ganglia (hexamethonium, pentolinium, mecamylamine) or peripherally at the neuro-effector site (adrenergic blockade), the best drug available for this latter purpose being Dibenzyline. The site of action of the various drugs which depress these vasoconstrictor impulses within the brain and sympathetic nervous system is presented diagramatically in Figure 2.

The majority of the symptoms and altered functions resulting from prolonged or severe hypertension may be attributed to damage of three important vascular beds: the brain, the heart, and the kidneys.[1] Damage to these important vascular beds may be prevented by reducing the blood pressure. Therefore, it is rational to treat all of the patients with severe disease, as well as those with moderately severe disease, in the hope of preventing progression and the development of serious complications. However, since malignant hypertension is such a rapidly progressive disease, resulting in death in the majority of the patients within one year, it is easier to evaluate the effect of treatment of such patients since shorter periods of follow-up are required to reach

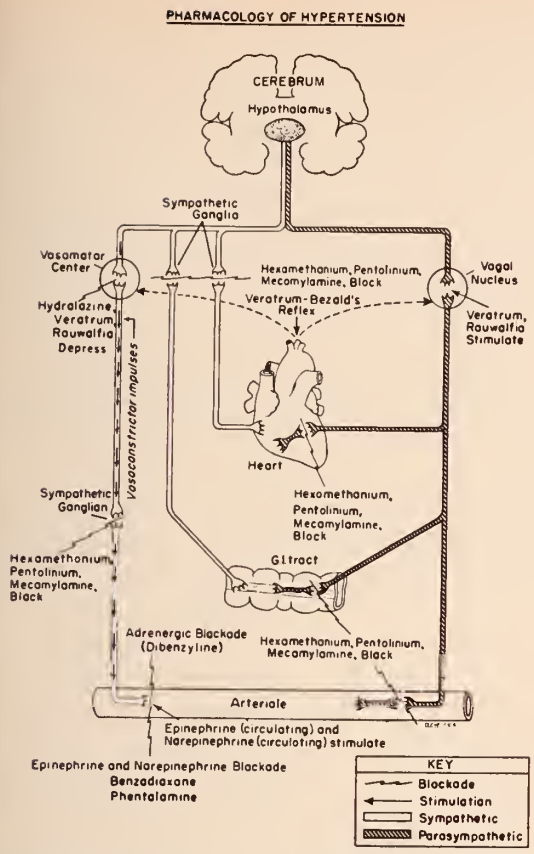


Figure 2.—Point of action of the various antihypertensive drugs which depress the outflow of vasoconstrictor impulses over the sympathetic nervous system to the blood vessels. (Courtesy S. Med. J. 48:1245, 1955).

valid conclusions. The beneficial effects of adequate reduction of blood pressure in patients with malignant hypertension are encouraging. The untreated patient with malignant hypertension usually dies of cerebral hemorrhage, coronary occlusion or heart failure, or from progressive renal damage which can be the most devastating of all the complications. However, when the patient is treated effectively, these complications can be frequently prevented, even after the onset of the malignant phase of the disease (Tables 1 to 3). For example, Table 1 shows the survival rate in a group of patients with malignant hypertension, studied before the advent of effective antihypertensive agents, compared to a similar group of patients who were treated effectively, since these agents become available in 1952.

TABLE 1
COMPARISON OF SURVIVAL IN TREATED AND UNTREATED PATIENTS WITH MALIGNANT HYPERTENSION

	Number Patients Treated	Survival for 1 to 2 years
Jefferson Davis Hospital		
Untreated (1948 to 1952)	22	6 (27%)
Treated		
Normal BUN	11	10 (91%)
Elevated BUN	5	3 (60%)
Schroeder & Perry [2]		Less
Untreated	?	than (10%)
Treated		
Normal BUN	47	37* (79%)
Elevated BUN	40	24 (50%)

* 8 of these who died stopped therapy of their own accord; if these are discarded, the survival becomes 92%.

Untreated patients (with malignant hypertension) surveyed at Jefferson Davis Hospital, prior to 1952, showed a one year survival rate of 27 per cent. Schroeder and Perry [2] observed a survival rate of less than 10 per cent in untreated patients. In another series at Jefferson Davis Hospital, who were started on effective therapy between 1952 and 1953, the survival rate was 91 per cent in the patients who showed minimal renal damage, as indicated by BUN determinations. However, in patients in whom the blood urea nitrogen was elevated, the survival rate was only 60 per cent. This indicates that after renal damage has occurred, the prognosis becomes increasingly unfavorable. The results of Schroeder and Perry [2] are similar. Therefore, it is well substantiated that adequate antihypertensive therapy in patients with severe hypertension, makes it possible to improve greatly the prognosis, even though renal damage already exists as indicated by an elevated blood urea nitrogen. However, despite adequate therapy, it is still obvious that the greater the renal damage, the poorer the prognosis, and consequently, the less effective the therapy. We can conclude that adequate control of the blood pressure not only arrests, but may actually improve the vascular changes associated with severe hypertensive vascular disease in some instances. If this is true for the kidney, there is no reason to believe that it should not occur in other vascular

beds which are prone to vascular damage resulting from severe hypertension.

TABLE 2
PROGRESSIVE DETERIORATION IN RENAL FUNCTION IN A TYPICAL PATIENT WITH MALIGNANT HYPERTENSION PRIOR TO 1950

Time	Blood Pressure mm Hg.	Glomerular Filtration Rate ml/min.	Renal Blood Flow ml/min.
Control	270/150	90	990
2 months	248/156	70	720
4 months	260/160	55	600
8 months	250/160	40	200
10 months	270/165*	28*	120*
11 months	Death!	Death!	Death!

* uremia

TABLE 3
EFFECT OF ANTIHYPERTENSIVE TREATMENT ON PATIENT W. L. WITH MALIGNANT HYPERTENSIVE VASCULAR DISEASE

	Mean Blood Pressure mm Hg.	Glomerular Filtration Rate ml/min.	Renal Blood Flow ml/min.
No treatment			
Control	160	90	940
After 6 months (no therapy)	175	55	365
After treatment			
3 months	105	52	410
1 year	98	56	458
2 years	110	60	520

Table 2 outlines the results of differential renal function studies in one patient with malignant hypertension who was followed for ten months. There was a progressive deterioration of renal function, indicated by reduction in glomerular filtration rate and renal blood flow. He died eleven months after admission to the clinic. Table 3 presents the data on a similar patient, who was observed initially two years later. After he had been followed for six months without therapy, effective measures for reducing blood pressure became available. During the six months prior to therapy the glomerular filtration rate decreased from 90 cc. per minute to 55 cc. per minute, and renal blood flow was reduced more than 50 per cent; both of these are indicative of severe renal vascular deterioration. However, when an effective reduction in blood pressure was obtained, there was no further deterioration in renal function, but at the same time, these did not return to normal. The follow-up, one and two years later, indicated essentially the same renal function that was observed immediately after the initial period of blood pressure regulation. We can, therefore, conclude that adequate control of blood pressure will prevent renal vascular deterioration, but once this has occurred, reversal towards normal is minimal.

THERAPEUTIC PROGRAM IN CLINICAL MANAGEMENT OF HYPERTENSION

Table 4 outlines our suggested therapeutic approach to the out-patient treatment of hypertension. This program is based on detailed clinical observations obtained with many antihypertensive agents, used singly or in combination, for the treatment of hypertension in our clinics. The basic rule is to use the less potent centrally acting drugs for the treatment of less severe disease,‡‡ and to reserve the more potent peripherally acting agents (ganglionic and adrenergic blocking agents) for the treatment of severe dis-

TABLE 4
SUGGESTED THERAPEUTIC APPROACH TO THE TREATMENT (OUT-PATIENT) OF HYPERTENSION

Severity of Hypertension	Therapy
MILD	
Labile	Rauwolfia *
Fixed Diastolic	Rauwolfia * alone or with Hydralazine † or Ganglionic blocking agents ‡
SEVERE	Rauwolfia * plus Ganglionic‡ or Adrenergic** blocking agents

* Daily dose of 4 mg. alseroxylon (Rauwiloid), 300 mg. of whole root or 1 mg. of reserpine.

† Start with 25 mg. after each meal and at bedtime and gradually increase to a maximum of 600 mg. or until blood pressure is controlled.

‡ Start on small doses of ganglionic blocking agent such as 125 mg. hexamethonium after each meal and at bedtime, 40 mg. of pentolinium after each meal and at bedtime or 2.5 mg. of mecamylamine after breakfast and supper. Increase progressively until blood pressure is adequately reduced in the upright position.

** Phenoxybenzamine (Dibenzyline) — start with 5 mg. twice a day and gradually increase the dose.

‡‡ Patients with diastolic blood pressures of less than 100 mm. Hg. are not treated with antihypertensive agents. Patients with diastolic pressures between 100 and 110 mm. Hg. are treated only if they exhibit progression and complications due to hypertensive vascular disease.

ease. We have reached this conclusion because the less potent drugs, such as rauwolfia and hydralazine,* are easier to regulate, and the side effects are usually not as severe when they are effective. Unfortunately, these agents are rarely effective when used singly for the treatment of patients with severe hypertension. In patients with severe disease, we have found that rauwolfia† compounds should be used as basic medication, in conjunction with the other more potent agents. Therefore, we start all of the patients (if therapy is indicated) on one of the rauwolfia compounds. After an effective response has been obtained, if the blood pressure has not returned to normotensive levels, another agent is given concurrently with the rauwolfia.

Rauwolfia Alone and in Combination with Hydralazine (Apresoline): In the patient with mild diastolic hypertension but in whom the blood pressure is fixed, it is usually preferable to try hydralazine in combination with rauwolfia when rauwolfia alone is inadequate. This combination produces very little orthostatic effect, a serious detriment to the use of the more potent ganglionic blocking agents and adrenergic blocking agents. Long term management is accomplished more readily with a combination of rauwolfia and hydralazine if this combination will reduce the blood pressure adequately, but, unfortunately, this is frequently not the case. However, a therapeutic trial should be instituted. After the dose of hydralazine has been titrated to a maximum of 600 mg. per day, if an effective reduction in blood pressure has not been obtained, this combination should be discontinued immediately and a more effective potent agent employed. No antihypertensive drugs shoud be continued if they do not produce an effective therapeutic response because of the potential side effects inherent in the use of these agents.

There is very little difference in the therapeutic effectiveness of the various rauwolfia preparations whether the pure alkaloids such as reserpine be used or the compounds containing multiple alkaloids (Table 5). Furthermore, there is very little difference in the incidence of side effects (Table 6). We prefer to use al-

* Furnished as Apresoline by Ciba Pharmaceutical Products, Inc.

† Furnished as Alseroxylon (Rauwiloid) by Riker Laboratories and as reserpine (Serpasil) by Ciba Pharmaceutical Products, Inc.

TABLE 5
BLOOD PRESSURE RESPONSE TO DIFFERENT EXTRACTS OF RAUWOLFIA

Drug	Control Diastolic less than 120 mm. Hg. but more than 100 mm. Hg. (Supgroup A)					Control Diastolic more than 120 mm. Hg. (Subgroup B)					Totals (Subgroups A & B)				
	Number Treated	Responsive No.	% *	Normotensive No.	% †	Number Treated	Responsive No.	% *	Normotensive No.	% †	Number Treated	Responsive No.	%	Normotensive No.	%
Roxinil (Group 1)	27	18	67	13	48	13	8	62	2	15	40	26	65	15	38
Alseroxylon (Group 2)	69	34	49	30	43	49	26	53	12	24	118	60	51	42	36
Rauwolfia (Group 3)	21	11	52	6	29	21	12	57	3	14	42	23	55	9	21
Reserpine (Group 4)	28	13	46	9	32	34	20	59	2	6	62	33	53	11	18
Rescinnamine (Group 5)	42	19	45	8	19	42	21	50	3	7	84	40	48	11	13
Totals and per cent	187	95	51	66	35	159	87	55	22	14	346	182	53	88	25

* Per cent of patients in this subgroup who obtained a reduction in mean blood pressure of 20 mm. Hg. or more from control value.

† Per cent of patients in each subgroup who became normotensive (blood pressure less than 150/100).

From Moyer, et al AMA Arch. Int. Med., 96:530, 1955.

TABLE 6
SUMMARY OF PHARMACODYNAMIC RESPONSES (BENEFICIAL AND UNTOWARD) TO DIFFERENT EXTRACTS OF RAUWOLFIA

	Roxinil		Alseroxylon		Rauwolfia (Whole Root)		Reserpine		Rescinnamine	
	No. *	% †	No. *	% †	No. *	% †	No. *	% †	No. *	% †
Total Number Treated	40	100	118	100	42	100	62	100	84	100
Side Effect										
Beneficial										
Blood pressure reduction	26	65	60	51	23	55	33	53	40	48
Bradycrotic response	28	70	77	65	31	74	44	71	46	55
Sedation	20	50	63	53	24	57	29	47	29	35
Sense of well being	16	40	67	57	21	50	22	35	23	27
Untoward										
Nasal congestion	22	55	85	72	31	74	40	65	43	51
Diarrhea	5	13	7	6	3	7	3	5	6	7
Increased appetite	24	60	72	61	26	62	37	60	28	33
Weight gain	19	48	73	62	22	52	31	50	34	40
Fatigue and weakness	16	40	13	11	10	24	27	44	13	15
Dizziness	12	30	8	7	4	10	13	21	4	5
Nightmares	4	10	7	6	3	7	4	6	3	4
Dysuria	1	3	2	2	1	2	1	2	0	0
Impotence	2	5	1	1	1	2	2	3	0	0
Syncope	0	0	0	0	0	0	1	2	1	1
Muscular aches	3	8	1	1	2	5	6	10	0	0

* Number of patients showing this particular response to the specific drug.
† Patients presenting side effect expressed as per cent of total number of patients treated with this particular drug.
From Moyer, et al, AMA Arch. Int. Med., 96:530, 1955.

seroxylon (Rauwiloid) since it is less likely to produce excessive fatigue and weakness than does reserpine.

Hydralazine should always be used in combination with rauwolfia compounds since the incidence and severity of side effects due to hydralazine are intolerable when this drug is used alone (Table 7). Although rauwolfia reduces greatly the side effects due to hydralazine, particularly, such side actions as palpitation, nausea and vomiting and headaches, these are not prevented completely. When they occur to a marked degree it is usually best to discontinue this drug combination since the side effects may become so severe that the patient will not continue on anti-hypertensive therapy. If the hypertension is sufficiently severe to warrant the use of more potent therapy, one of the ganglionic blocking agents should be substituted for the hydralazine.

TABLE 7
COMPARISON OF INCIDENCE OF SIDE EFFECTS DUE TO HYDRALAZINE (APRESOLINE) WHEN USED ALONE AS COMPARED TO THE INCIDENCE WHEN IT IS USED IN COMBINATION WITH RAUWOLFIA

Side Effects	Hydralazine Alone % of Patients Treated	Hydralazine plus Rauwolfia % of Patients Treated
Weakness & Fatigue	22	53
Diarrhea	7	13
Dizziness (Mild)	22	47
Nausea & Vomiting	37	20
Headache	37	7
Tachycardia	55	7
Palpitations	52	7
Angina	7	2
Nervousness	21	15

When hydralazine is given, it should be used by the titration method beginning with small doses, 25 mg. four times a day, and increasing until an optimal blood pressure response is obtained. The maximum dosage of hydralazine, regulated by the upright blood pressure, should be 600 mg. daily. The response rate with this combination in one group of patients in our clinic has been 67 per cent; of these patients 18 per cent have become normotensive. The combination of rauwolfia plus hydralazine is particularly useful in patients with hypertension associated with significant renal disease, and who are not responsive to rauwolfia alone. This combination is less apt to produce the pre-

cipitous drops in blood pressure so commonly seen with peripherally acting agents such as ganglionic and adrenergic blocking agents. Such a response will aggravate the renal failure.

Rauwolfia plus Ganglionic Blockage: In the treatment of moderate to severe hypertension, the experience of most investigators suggests that rauwolfia plus ganglionic blockade, with either hexamethonium,* pentolinium,** chlorisondamine† or mecamylamine‡ offers the most effective means for reducing the blood pressure. This combination also represents by far the most difficult of the commonly employed regimens to control, unless meticulous attention is given to such details as control of constipation, careful dose titration, and thorough evaluation of the patient's symptoms during therapy. There is essentially no difference between chlorisondamine (Ecolid) and pentolinium (Ansolysen) (Table 8); it will be noted that the incidence of blood pressure response and the normotensive rates are about the same. Both of these agents are considerably more potent than hexamethonium (Table 8) and have a longer duration of action. Therefore, they are to some degree easier to use than hexamethonium. However, Table 9 shows that it is obvious that insofar as the incidence of side effects is concerned, there is very little difference between hexamethonium and the other ganglionic blocking agents.

Recently, a new ganglionic blocking agent has become available. This is a secondary amine, rather than a quaternary ammonium compound. This drug is known as mecamylamine (Inversine). It is absorbed completely from the gastrointestinal tract, and in addition to producing ganglionic blockade, it has some central sedative effect. The duration of action is prolonged, frequently up to thirty-six hours. Despite the duration of action, greater potency, and complete absorption, as compared to the other ganglionic blocking agents, it still has the same side effects that are seen with quaternary ammonium compounds, i.e., parasympathetic blockade and frequent variability of blood pressure reduction. The latter results from the variability in sympathetic activity which patients display from time to time (Figure 10).

Table 10 summarizes the blood pressure response in a group of 11 patients who were given mecamylamine intramuscularly, and on a subsequent day were given the same dose daily. There is essentially no difference either in the onset of action, the duration of action or in the degree of blood pressure reduction for the group.

Special Problems Associated with the Use of Rauwolfia plus Ganglionic Blocking Agents:

Dose Titration:

There are some rules which must be observed when ganglionic blocking agents are used. One of the most important of

* Furnished as Methium by Warner-Chilcott Laboratories.

** Furnished as Ansolysen by Wyeth Laboratories.

† Furnished as Ecolid by Ciba Pharmaceutical Products, Inc.

‡ Furnished as Inversine by Sharp & Dohme, Div. of Merck & Co.

TABLE 8
COMPARISON OF BLOOD PRESSURE RESPONSE (UPRIGHT) WITH DIFFERENT GANGLIONIC BLOCKING AGENTS COMBINED WITH RAUWOLFIA

	Rauwolfia + Mecamylamine (Inversine)		Rauwolfia + Hexamethonium		Rauwolfia + Pentolinium (Ansolysen)		Rauwolfia + Chlorisondamine (Ecolid)	
	No.	%	No.	%	No.	%	No.	%
Number Patients Treated	80	100	75	100	75	100	44	100
Repsonsive	75	94	57	76	59	79	35	80
Normotensive	30	38	28	37	25	33	14	32
Unresponsive	5	6	18	24	16	21	9	20
Average 24 hour dose of Responsive Patients	25 mgm		2307 mgm		341 mgm		253 mgm	

TABLE 9

COMPARISON OF SIDE EFFECTS OBSERVED WITH DIFFERENT GANGLIONIC BLOCKING AGENTS WHEN COMBINED WITH RAUWOLFIA

	Mecamylamine (Inversine) + Rauwolfia %	Hexamethonium + Rauwolfia %	Pentolinium (Ansolysen) + Rauwolfia %	Chlorisondamine (Ecolid) + Rauwolfia %
Bradycardia	50	68	67	66
Nasal Congestion	33	61	51	68
Constipation	69	52	49	59
Weakness	46	35	32	43
Increased Appetite	23	21	32	23
Weight Gain	14	20	35	23
Dizziness	45	35	40	50
Syncope	5	5	1	9
Nausea	11	26*	†	23
Vomiting	3	26*	†	9
Blurred Vision	43	65*	†	50
Impotence ‡‡	55	50*	†	50
Anxiety-Depression	0	3	4	—
Sedation	56	27	39	25
Photophobia	12	8	18	39

* Initially with Hexamethonium alone
† Observations not available
‡‡ Observations made on males only

TABLE 10

COMPARISON OF BLOOD PRESSURE RESPONSE TO MECAMYLAMINE WHEN GIVEN ORALLY AND PARENTERALLY (MEAN VALUES FOR 11 PATIENTS)

	Route of Administration	
	Oral Route	Intramuscular Route
Control Blood Pressure		
Upright		
Systolic (mm. Hg.)	186	181
Diastolic (mm. Hg.)	119	120
Supine		
Systolic (mm. Hg.)	203	203
Diastolic (mm. Hg.)	126	125
Blood Pressure after Drug		
Upright		
Systolic (mm. Hg.)	122	118
Diastolic (mm. Hg.)	81	82
Supine		
Systolic (mm. Hg.)	165	160
Diastolic (mm. Hg.)	98	97
Dose (mg.)	19	20
Onset of Action (minutes)	37	46
Duration of Action (hours)	22	21

these is adequate dose titration. For example, Figure 3 presents the blood pressure response of two different patients to the same dose of ganglionic blocking agent. In one patient the blood pressure did not decrease with 10 mg. of mecamylamine, whereas in the other patient receiving the same dose, excessive reduction in pressure occurred. This emphasizes the necessity of starting the patient on a small dose and increasing it gradually until an appropriate dose, which produces the desired response, is obtained for each individual patient. This minimizes the incidence of side reactions and serves to prevent episodes of excessive reduction in blood pressure.

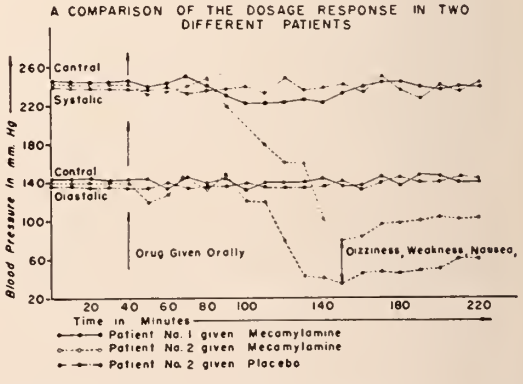


Figure 3.—Blood pressure response to mecamylamine in two different patients given the same dose (10 mg.). One obtained no reduction in blood pressure, in the other an excessive reduction occurred, thus demonstrating the necessity of individualizing the dose for each patient.

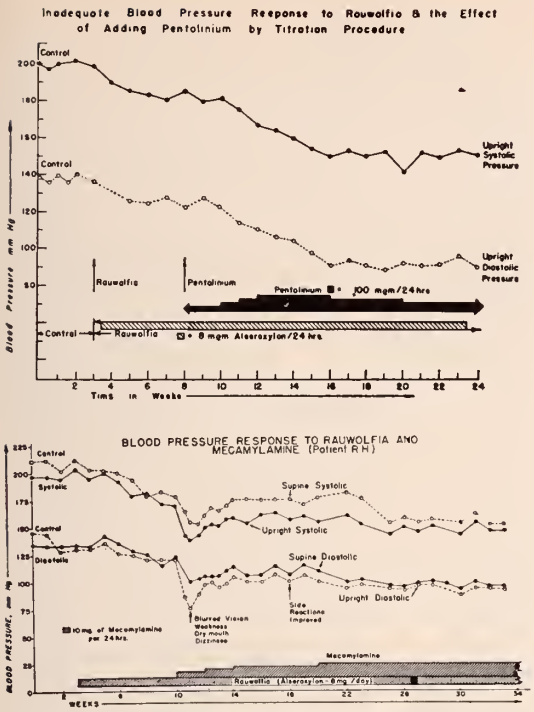


Figure 4(A).—Dose titration of pentolinium (Ansolysen). A small but inadequate response to rauwolfia was observed. When pentolinium was added in progressively increasing amounts, an effective reduction in blood pressure was obtained with a dose of 250 mg. per day. After the blood pressure was reduced and the hypertensive cycle broken, it was then possible to control the pressure at a lower dose of pentolinium. (B) Dose titration of mecamylamine (Inversine) with a response similar to that observed in Figure 4(A). The rauwolfia is given first for a period of 2 to 8 weeks, the duration of giving Rauwolfia (alone) depending upon the severity of the disease and the urgency for early reduction of blood pressure. After the effect of rauwolfia is established, the ganglionic blocking agent is started in small doses and increased progressively at weekly intervals until an adequate reduction of blood pressure is obtained in the upright position. There is usually some orthostatic effect and maximum blood pressure reduction is obtained in the upright position. Although this is not ideal, the patient's blood pressure can be controlled at normotensive levels, for 16 to 18 hours a day, the period of time the usual patient is up and about. Additional support to this type of response (orthostatic effect) at night can be obtained if the patient sleeps with the head of his bed tilted upward.

Constipation and Ileus:

Constipation, which may progress to ileus if untreated, or treated inadequately, can be a serious problem with the use of any ganglionic agents. It is essential that strict attention be given to this problem, and that cathartics and cholinergic agents be used freely. As with the blood pressure response, the constipating effect of the blocking agents is an individual response, and, as a result, the method for combatting this problem must be individualized for each patient. The optimal approach for each patient must be determined by trial and error. In some patients the cholinergic agents such as prostigmine,* in a dose of 15 to 30 mg. given orally before each meal, is quite adequate. However, in other patients this produces cramping in the abdomen and it is necessary to use cathartics such as 15 to 30 cc. of milk of magnesia or 10 to 15 cc. of cascara sagrada. If these are ineffective when used alone, then 30 cc of milk of magnesia and 15 cc. of cascara sagrada given together rarely fails. However, should ileus develop, the patient should be hospitalized and treated actively. We have found that prostigmine, 1 mg. given parenterally every hour until bowel movement occurs and ileus is relieved, is always effective. To date, we have not observed any serious complications due to this problem although we are aware of the potential dangers, and consequently, each of our patients is duly warned prior to the beginning of any of the ganglionic blocking agents.

Renal Considerations with Blood Pressure Reduction:

The majority of patients who have had moderately severe to severe hypertension for prolonged periods of time will usually exhibit variable degrees of renal damage. This must be taken into consideration when initiating antihypertensive therapy. Effective reduction of blood pressure will usually prevent progressive anatomical damage to the kidney, but, at the same time, the physiology of renal function is such that some reduction in glomerular filtration rate usually accompanies the

* 10 mg. of Urecholine and 5 mg. of Pilocarpine are also effective.

acute reduction in blood pressure. This is usually temporary (Figure 6) and returns to the pretreatment levels after hemodynamic readjustment takes place if the degree of blood pressure reduction is not excessive. Generally speaking, the less the renal damage, prior to induction of therapy, the better the patient will tolerate blood pressure reduction. For example, if glomerular filtration rate is adequate, then the blood pressure can be reduced to normotensive levels without fear of renal decompensation. However, if glomerular filtration is depressed severely prior to the induction of therapy, even a slight reduction in glomerular filtration rate may be deleterious. In these patients, it is necessary to reduce the blood pressure very slowly, and to keep a close watch on the renal function. The blood urea nitrogen determination is the most effective and valuable laboratory aid to guide the therapist concerning the degree to which the blood pressure can be reduced, and still be tolerated safely by the patient with pre-existent renal disease.



Figure 5A



Figure 5(A & B).—Roentgenogram of the abdomen in a patient who developed constipation and was treated inadequately. This was followed by abdominal distention and ileus was observed. The patient was given 1 mg. of prostigmine, subcutaneously, every hour, which resulted in a massive bowel movement and passage of flatus by the third hour and complete relief of symptoms by the sixth dose (Courtesy Am. Proct.).

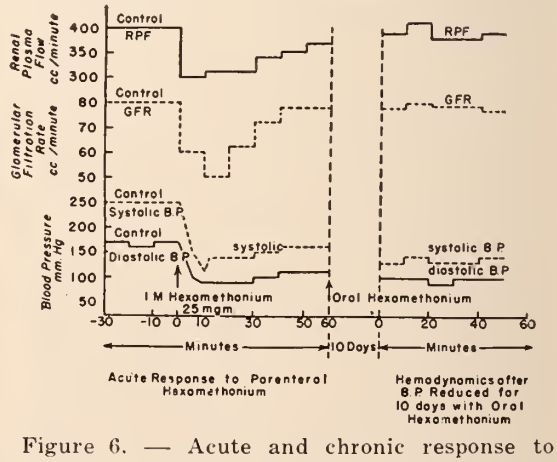


Figure 6. — Acute and chronic response to blood pressure reduction with a ganglionic blocking agent. As the blood pressure decreases initially, glomerular filtration rate and renal blood flow are depressed. However, as the drug is continued on long term therapy, glomerular filtration rate and renal blood flow return to normal despite a maintained reduction in blood pressure. (Courtesy J.A.M.A. 152:1121, 1953.)

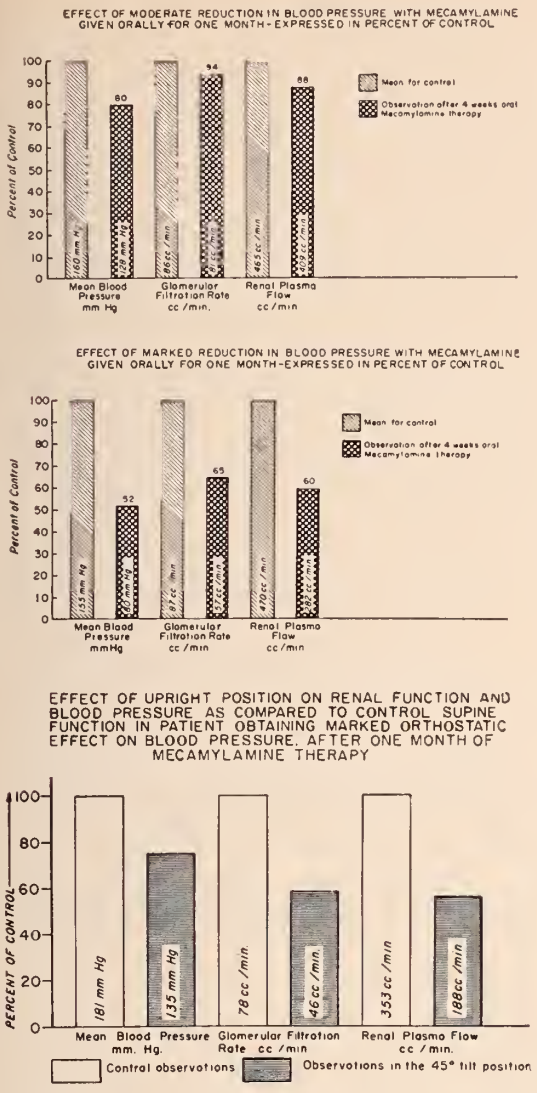


Figure 7(A). — Renal hemodynamic response to moderate reduction in blood pressure in a patient in whom glomerular filtration rate and renal plasma flow determinations were done. Glomerular filtration rate was reduced slightly but this was not enough to alter renal function significantly. (B) Blood pressure response to marked reduction in blood pressure. When this occurred, glomerular filtration rate and renal blood flow were depressed significantly. In the patient who shows border-line renal function, this might well be enough to produce progressive renal failure. (C) Renal hemodynamic response to the upright position in a patient who was receiving ganglionic blockade therapy. As the patient was tilted upright, glomerular filtration rate and renal plasma flow were depressed in comparison to the values in the supine position. (Courtesy A.M.A. Arch. Int. Med. Moyer and others, August 1956. In Press.)

Figure 7A summarizes observations of the effect on glomerular filtration rate in a patient who was given mecomylamine and the blood pressure reduced to a moderate degree. Glomerular filtration rate and renal blood flow are not depressed significantly. Figure 7B presents similar observations made on a patient in whom the blood pressure was reduced to low normotensive levels, i.e., 100/70. In this patient, glomerular filtration rate was depressed markedly and renal blood flow was depressed simliarly.

When patients who are receiving ganglionic blocking agents are ambulatory, or tilted in the passive 45 degree tilt, which resembles the sitting position, there is a greater reduction in renal function than is seen in the supine position (Figure 7C). This should be considered if excessive reduction in blood pressure should occur with the use of these agents or if the patient develops progressive renal insufficiency. He should then remain in bed, and supine until this unfortunate complication has been corrected.

TABLE 11
APPROXIMATE DEGREE OF BLOOD PRESSURE REDUCTION (UPRIGHT) THAT CAN BE ACCOMPLISHED DEPENDENT ON AMOUNT OF PRE-EXISTING RENAL DAMAGE

Blood Urea N/mg %	Reduce Upright Blood Pressure to:
Normal	130-150/ 80-100
BUN 30 to 60	150-170/100-110*
BUN 60 to 100	180-190/110-120*
BUN 100	No Reduction

* Do not reduce blood pressure further if BUN rises.

Table 11 presents the general range to which the blood pressure can be reduced, without depressing renal function, in the majority of patients. It will be noted that the greater the elevation in blood urea nitrogen, the less effectively the blood pressure can be regulated. When the blood urea nitrogen is above 60, repeated determinations must be made as the blood pressure is being reduced. The blood pressure should always be regulated in the upright position. Whenever there is evidence that the blood urea nitrogen is rising, the blood pressure cannot be reduced any further and in fact, should

usually be allowed to rise slightly. As noted above, a paradox exists in that (from a functional point of view) reducing the blood pressure in patients who have severely damaged kidneys, may cause some reduction in renal function, at the same time if an adequate reduction in pressure can be obtained, it will prevent progressive anatomical damage to the kidneys.

Should excessive reduction in blood pressure occur, associated with excessive depression in renal function, this can easily be corrected by the use of a vasopressor agent. For example, Figure 8a presents a patient in whom the blood pressure was reduced excessively with hexamethonium. The patient became anuric. However, when the blood pressure was increased with norepinephrine, glomerular filtration rate returned quickly to normal, and urine output returnd to control levels. A similar observation is presented in Figure 8B, in a patient who received pentolinium. This patient also became anuric and the glomerular filtration rate became depressed due to an excessive reduction in blood pressure. As the blood pressure was increased to normotensive levels, glomerular filtration rate returned to normal and urine output increased.

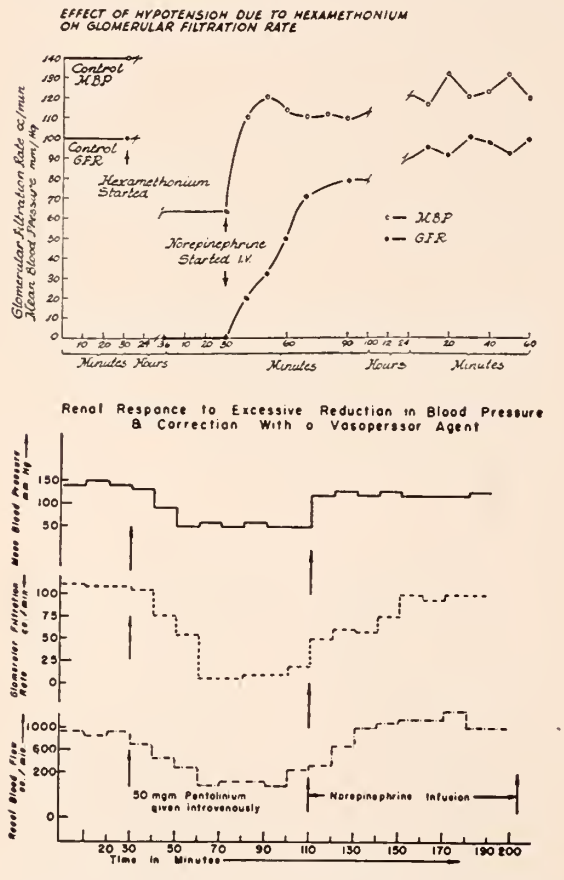


Figure 8(A). — Renal hemodynamic response to excessive reduction in blood pressure due to hexamethonium. As the blood pressure decreased, glomerular filtration rate was reduced, this was associated with anuria. As the blood pressure was increased to normotensive levels, with norepinephrine glomerular filtration rate and urine output increased toward normal. (B) Renal hemodynamic response to excessive reduction in blood pressure due to pentolinium (Ansolysen). Glomerular filtration rate and renal blood flow were depressed markedly. As the blood pressure was restored to normotensive levels, with a vasopressor agent, glomerular filtration rate and renal blood flow returned to normal. (Courtesy J.A.M.A. 152:1121, 1953)

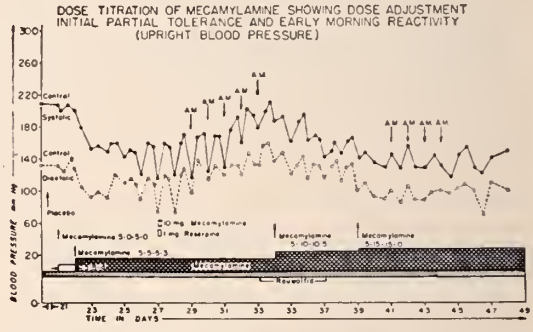


Figure 9.—Blood pressure response in a patient who showed early morning reactivity due to the ganglionic blocking agent mecamylamine (Inversine). When the dose was readjusted so that he received a large dose at lunch time and no drug at night, the excessive reduction in blood pressure which occurred in the morning was less evident.

Early Morning Reactivity with the Use of Long Acting Ganglionic Blocking Agents:

There are a few additional considerations in the use of these agents for the treatment of severe hypertension. For example, with the long acting ganglionic blocking agents, particularly with mecamylamine, it is necessary to give a larger dose in the morning, and at noon time. We have found that if we have patients who require large doses of the blocking agents and use equal doses throughout the day, i.e., with meals and at bedtime,

excessive reduction in blood pressure occurs when the patients first arise in the morning. The patient will complain of dizziness and weakness. However, when the dosage schedule is arranged so that a large dose is given to these patients at breakfast, and at lunch, and relatively small doses at supper time, without any medication at bedtime, this early morning reactivity does not occur. Such an example is presented in Figure 9. This patient did very poorly when he was receiving a dose of 5 mg. with each meal and at bedtime. He did better when his lunch and supper dose was increased, but an optimal titration was obtained when the bedtime dose was discontinued entirely.

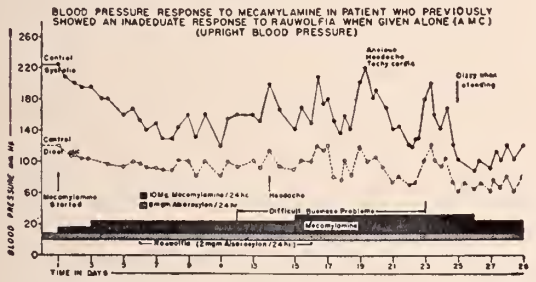


Figure 10.—Blood pressure response in a patient who was well regulated on rauwolfia plus a ganglionic blocking agent, mecamylamine. However, when the patient was subjected to excessive stress, he developed marked swings in his blood pressure which were symptomatic at times. It was necessary to increase the dose of the ganglionic blocking agent to control his blood pressure. However, when the stress was removed, this dose of the blocking agent proved to be excessive producing a marked reduction in blood pressure. When the dose of the drug was then reduced the patient was again well regulated: (Courtesy A.M.A. Arch. Int. Med. Moyer and others: Drug therapy (Mecamylamine of hypertension, August 1956. In Press)

Variation in Environmental Stress:

It is important to remember that when a ganglionic blocking agent is used, the degree of blockade is relatively fixed. Therefore if the patient is subjected to excessive stresses, the activity within the sympathetic nervous system will increase. As a result, more impulses will break through the ganglionic blockade and the blood pressure will rise. If periods of stress are to be anticipated, then the dose of the blocking agent will frequently have to be increased. On the other hand, if the patient who has been under stressful situations retires to a more relaxed atmosphere, it is frequently necessary to reduce the dose of the ganglionic blocking agent; otherwise, he will get excessive reduction in blood pressure since less vasoconstrictor impulses are emanating from the central nervous system and traveling over the sympathetic nerves to the blood vessels. Such a response is graphically presented in Figure 10.

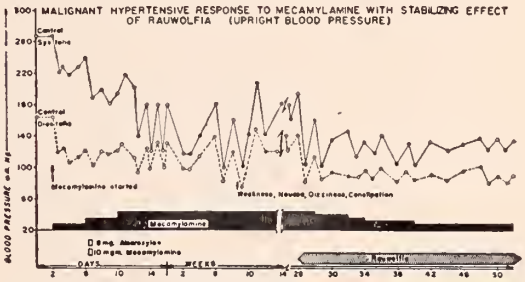


Figure 11.—The stabilizing effect or rauwolfia on the response to the ganglionic blocking agent, mecamylamine. Prior to the administration of rauwolfia the swings in blood pressure were excessive and the patient's blood pressure was regulated poorly. After the rauwolfia was given, the blood pressure was much more stable and better regulated at a considerably lower dose of the blocking agent. (Courtesy A.M.A. Arch. Int. Med. Moyer and others, August 1956. In Press).

Synergistic Effect of Rauwolfia and Ganglionic Blocking Agents:

Frequently the question arises whether or not the rauwolfia compounds actually have any effect on the more potent ganglionic blocking agents. It has been our observation that when rauwolfia is used in addition to the ganglionic blocking agent, a smaller dose of the ganglionic blocking agent is required. This is due to the reinforcement of depression of the sympathetic nervous system by the rauwolfia, which acts centrally, by contrast to the ganglionic blocking agent which acts peripherally. In addition, rauwolfia, by reducing the dose requirement of the ganglionic blocking agent, will decrease the incidence and severity of side effects due to parasympathetic ganglionic blockade. This is a definite advantage, particu-

larly with regard to dry mouth, constipation and blurring of vision. Such a response indicating the synergistic effect of rauwolfia is summarized in Figure 11.

Sometimes it is not possible to regulate adequately the blood pressure with the combination of rauwolfia and the ganglionic blocking agents, due to the severity of the side effects. When this occurs, we have found it best to reduce the dose of the ganglionic blocking agent to a level that is well tolerated. After this has been established, and the patient has been sta-

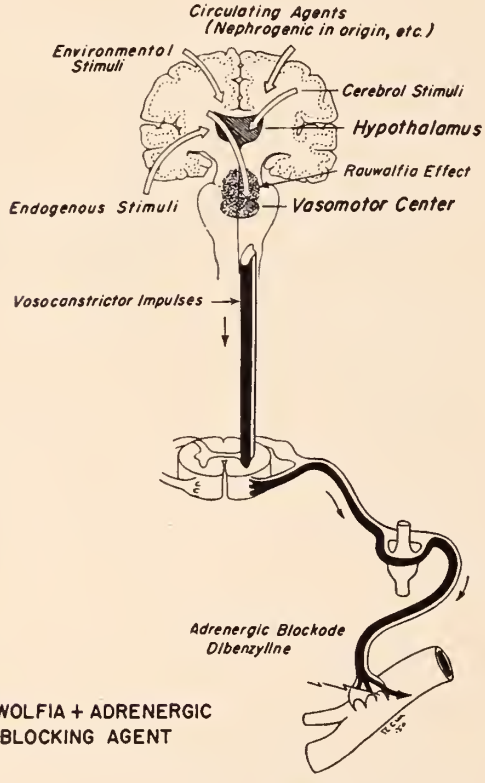


Figure 12.—Diagramatic representation of the pharmacology and therapeutic rationale for giving phenoxybenzamine, (Dibenzyline) in combination with rauwolfia for depressing vasoconstrictor impulses in the sympathetic nervous system and thus reducing the blood pressure. (Courtesy Am. J. Med. Sci. 230:33, 1955).

bilized, it is then feasible to give an adrenergic blocking agent in addition to the rauwolfia and the ganglionic blocking agent which further reinforces the blockade of the sympathetic nervous system at a third point. The drug preferred for this purpose is phenoxybenzamine (Dibenzyline).* The initial dose, given in conjunction with the ganglionic blocking agent and rauwolfia, is 5 mg. given with breakfast and supper. The patient is carried on this dose for a period of one week. The dose is then increased gradually, giving 5 mg. three times a day. If this is inadequate, the dose is increased in 5 mg. increments, using the same interval between doses as before. This is the most potent combination of antihypertensive agents available today. When using this triple combination, it is necessary that the blood pressure always be adjusted in the upright position.

SUMMARY AND CONCLUSIONS

1. A brief review of the pathological physiology and the pharmacodynamics of antihypertensive therapy, as applied to the out-patient treatment of patients with hypertension, has been presented.

2. The therapist should be familiar with the more useful therapeutic agents available today. In general, an agent should be selected which is appropriate for the severity of the disease being treated. The more potent ganglionic and adrenergic blocking agents should be reserved for the treatment of patients with moderately severe to severe disease. When using the latter agents, strict attention must be paid to individualizing the dose for each patient, and to adequate measures for combating the side effects, as well as dose adjustment throughout the day so that the blood pressure is regulated at the optimal level with a minimum of side effects.

3. In the patient with moderately severe to severe disease, progressive vascular deterioration can be prevented in a large per cent of patients if the blood pressure is well controlled. This has been demonstrated clearly in patients who have received effective treatment for malignant hypertension.

4. When the principles of applied pharmacology of available antihypertensive agents are followed, well over 95 per cent

* Furnished as Dibenzylene by Smith, Kline & French Laboratories.

of all patients with essential hypertensions can be treated adequately provided that the kidney damage (and other vital vascular beds) has not already progressed to the phase of functional decompensation.

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FEDERAL CIVIL DEFENSE ADMINISTRATION MEDICAL SERVICES *

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It is an honor and a privilege to take part in your annual convention, and I appreciate very much the opportunity to tell you something of the medical services program of FCDA.

FCDA has been given the very heavy responsibility of organizing or helping to organize medical services adequate to care for casualties which would result from an enemy attack upon this country. At the same time Congress has said that the development of civil defense structures is a state and local responsibility, with the Federal agency providing guidance, assistance, and some financial and other support. In addition, FCDA is responsible for developing national plans for long range programs.

Before plans can be made at any level—national, state, or local—certain assumptions must be made. FCDA has made the following assumptions for 1956. These are based on the most recent known or estimated ability of a potential enemy to attack the United States. They are not to be regarded as predictions of what the enemy would do if he did attack the U. S.

POTENTIAL ENEMY ATTACK

1. *Type of attack*: It is accepted that the potential enemy has the ability to strike any target in the U. S., or many targets simultaneously. It is assumed that the principal weapons will be nuclear bombs of varying sizes. Some of these will be detonated in the air; others on or near the ground so that the radiation hazard may affect areas far removed from the blast and heat effects of the weapon. Incendiary and chemical warfare weapons will probably also be used as will biological weapons by sabotage. It is assumed that the initial attack will be an attempted knockout blow.

2. *Targets*: It is assumed that industrial, population, and transportation centers and bases of military retaliation will be the principal targets, and that chemical and biological warfare attacks will be carried out in rural as well as urban areas. The problem of radioactive fallout will be widespread and will, by no means, be limited to target areas.

3. *Bomb size*: It is assumed that the potential enemy can make nuclear weapons of varying yield ranging from a few thousand to millions of tons of TNT equivalent, and that for a given target he will select a weapon of the size which will accomplish his purpose. Any city attacked with modern nuclear weapons can be substantially destroyed.

4. *Support*: No city which has been attacked with modern weapons will be able to meet its needs with what is left of its own resources; therefore, any area attacked will require outside support. Help must come from other areas, possibly from great distances, and to be effective —to be available when required—must be organized in advance of attack.

5. *Warning time*: It is assumed that in case of an attack during 1956 points along the Canadian Border and the Atlantic, Pacific, and Gulf coasts may receive as much as one hour of warning. Targets in the interior of the country may receive as much as three hours of warning. The possibility of a surprise attack with planes is diminishing, but still exists. If and when the intercontinental balistics missile carrying an atomic or nuclear warhead is perfected, warning time for the target

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city or cities may be brief or absent, though the rest of the country will of course be alerted.

These are the current assumptions—subject to modification as time goes on—which have been accepted by FCDA and are the basis for the Medical Services plan or program. It should be emphasized that FCDA has no authority to set up the program to be discussed. But FCDA together with the State and local Civil Defense organization, has the responsibility—now while there is still time—for making plans, training personnel and developing organizations so that under emergency conditions these plans can be put into effect without delay. It should be further emphasized that these plans and programs are designed, not for peace time, but for the chaotic conditions which will exist during and following an enemy attack upon this country.

Those of you who have had military experience under actual combat conditions know the difference between combat surgery and peace time surgery. It is you who share the responsibility with FCDA of dispelling the complacency that exists among so many physicians and surgeons, when these problems are discussed, that they can take in their stride any sort of disaster.

MEDICAL ASPECTS OF ACTUAL DISASTER

An example of what can happen without prior planning, training, or organization is what *did* happen in the Worcester, Mass., tornado of June 9, 1953. The medical aspects of this disaster were well documented by Dr. Edward D. Churchill in the December 1953 issue of *Annals of Surgery*, and studied by the Committee on Disaster Studies of the National Research Council. Two points in particular were made in this documentation. The first was total lack of an equable distribution of the injured among the hospitals of the region. Rounded up by volunteer workers, the injured were rushed to the nearest hospital. As a result, hospitals close to the tornado's path were swamped by large numbers of injured, while other hospitals nearly as accessible by motor transport, received none. It is reported that this faulty distribution produced overcrowding, confusion, and delay in treating the injured.

The second point dealt with surgical error. Dr. John Raker, a member of the Committee on Disaster Studies, gives the following list of injuries:

Skull fracture and head injuries	77
Fracture of long bones	180
Eye injuries	28
Ruptured kidney	9
Ruptured spleen	6
Burns	5
Major lacerations	147
Minor lacerations and injuries	900*

*(estimated)

and of operations:

Neurosurgical	14
Major orthopedic	15±
Major lacerations debrided and closed secondarily	23
Major lacerations closed primarily	the remainder.

Dr. Churchill continued his observations. Charged with the care of these injuries, doctors hastily sewed up wounds and lacerations. With many unversed in the principles of debridement, handicapped in some instances by depletion of sterile supplies, poor lighting and a lack of trained assistants, it is not surprising that wound complications were numerous. Dirt, devitalized tissue, foreign bodies and debris caused early wound breakdown, sepsis, delayed healing, and unsightly scars. All this in spite of a decade of preaching the gospel of the no-primary-suture management of contaminated wounds under combat or disaster conditions.* It is reported that six weeks after the tornado the V.N.A. was following some 600 cases of sepsis.

FCDA PLANS FOR MEDICAL CARE

FCDA has evolved comprehensive plans of organization and action which it is hoped will forestall a repetition of the events that happened at Worcester. These

* "Readings *in Disaster Planning for Hospitals*", American Hospital Association, 1956.

are presented for your consideration with the hope that you will study these plans with your state and local Civil Defense Directors with such modications as will meet local or individual situations.

FCDA Medical Services can be roughly divided into four sections or divisions: (1) Medical care, (2) Health protection, (3) Radiological defense, (4) Chemical defense.

1. Medical Care includes first aid and casualty care and hospital care. A suggested staffing pattern for one first aid station group includes 3 physicians, 2 dentists or veterinarians, 1 pharmacist, 55 first aid workers and nurses aides, 3 clerical assistants, 7 messengers, 1 medical regulator, 19 orderlies, 1 chaplain, 105 stretcher bearers, and 16 ambulance drivers. If staffed with this minimum personnel, and given sufficient supplies and equipment, it is estimated that this first aid station group could treat 500 casualties in the first eight hours of operation. The functions of the first aid station are to screen or sort casualties to determine immediate medical needs and to decide the disposition of the cases, to arrest hemorrhage, to treat shock, to relieve pain, to maintain records, and to arrange for transportation of casualties to nearby or more distant hospitals for further treatment. Sorting of casualties should be done immediately upon arrival at a station. This is the process of separating the injured according to the urgency and type of condition present, and is the key to the effective management of large numbers of casualties. It is the immediate grouping of patients according to the type and seriousness of injury, likelihood of survival, and the establishment of priority for treatment to assure medical care of greatest benefit to the largest number. The surgeons assigned to the first aid station and especially the ones responsible for sorting should be men of mature judgment and long clinical experience. Supplies are apt to be critical and should be reserved for those who have a chance of survival. Brutal as it sounds, blood, plasma expanders and other supplies, if scarce, as well as the surgeon's time should not be wasted on those hopelessly injured. This is a far cry from peace time practice, but remember that these plans are not for peace time conditions.

The following priority schedule is suggested as one which might prove helpful in this problem of sorting:

1. Those casualties should be treated first who present severe hemorrhage, severe penetrating and crushing injuries of the chest and abdomen, and badly crushed and torn extremities.

2. In the second category would come those patients presenting shock, small chest penetrations, and those in need of artificial respiration or administration of oxygen. These patients should be given immediate resuscitation, then rest, where no surgery or other care is required to save life within a few hours.

3. In the third category would come severe burns (1/5 - 1/4 of the body surface or more), compound fractures, joint penetrations, and severe face and superficial wounds.

4. In the fourth category would come minor head injuries, eye and ear injuries, vascular injuries, and miscarriages.

5. In the last category would be placed contusions, lacerations, sprains, simple fractures, and minor burns. Radiation injuries, per se, do not constitute an emergency even when the victim has sustained a fatal or near fatal exposure.

How many of these first aid station groups will be required? For the large metropolitan areas it has been suggested that 12 standard first aid stations for each 100,000 population would probably be sufficient. You as a state medical society and as members of your local medical societies are urged to work closely with your state and local civil defense directors in estimating the number of casualties anticipated from attack, and to plan the number of first aid stations accordingly.

Where will the first aid stations be placed? Theoretically and ideally they

should be set up at the periphery of the zone of severe damage. It was found at Hiroshima that first aid stations could not have been established closer than 1½ miles to ground zero. If the superweapons being produced today are used against our cities, it might not be possible to get within 5 or more miles of ground zero. Tentative locations should be established in advance, however, with an alternate location should the first prove to be untenable. Sites should be numbered and all personnel of a given aid station should be trained to report to that station at a given time. Supplies and equipment for the aid station should be stored far enough away from presumed ground zero to escape damage from blast and heat. This may mean storing these supplies in a neighboring town.

It might be well for the local CD Director to plan to have at least one of his aid stations completely mobile. Remember that in Hiroshima 90 per cent of the doctors and 93 per cent of the nurses were themselves casualties and that 42 out of the 45 civilian hospitals were destroyed or put out of commission. In many of our own cities both hospitals and professional personnel are near the center of town and almost certainly would be lost under nuclear attack. Under these conditions mobile aid stations could be rushed in from neighboring cities. It would require one moving van for supplies, two buses of 40 capacity each, and 16 ambulances to transport equipment, supplies and personnel. This transportation is generally available in all communities, but should be earmarked in advance for this specific purpose.

The second part of the medical services program provides for hospital care of casualties. Actual experience with the use of atomic devices as weapons, has—fortunately—been limited to the two Japanese cities. While the destructive power of these and newer weapons has been fantastically increased since that time, our experience nevertheless is still limited to the so-called "nominal" A-bomb of approximately 20,000 ton of TNT equivalent. We must therefore begin at that point and by the use of charts and scaling laws arrive at the best possible figures for an estimate of destruction and casualties from the superweapons. The area of total destruction from an atomic or nuclear weapon increases as the cube root of the yield of the bomb. Thus, to double the area of total destruction the yield must be increased by eight.

Proceeding from the known areas of destruction in the Japanese cities, and from the known yield of some of the modern weapons it is possible to calculate areas of destruction from these weapons. Transporting these areas of destruction to cities like St. Louis, Chicago, New York or New Orleans, and knowing the populations of these cities it is possible to arrive at an estimate of casualties which might be expected if these cities were subjected to such an attack. These figures would be modified by the time of day and the day of the week the attack occurred since many cities are partially deserted at night and on weekends.

For purposes of long range planning FCDA has estimated that a surprise daylight attack with a "nominal" A bomb detonated at 2,000 feet over an "average" metropolitan area would produce a total of about 120,000 casualties—killed and ininjured. Of these about 40,000 would be killed outright or die the first day, and 80,000 would survive for at least the first twenty-four hours with at least 25-30,000 of them requiring hospitalization. Larger weapons would of course produce more casualties. An attempted knockout blow with the enemy using nuclear weapons against the critical target areas in this country would produce an estimated 1,200,000 surviving casualties requiring hospitalization. This grim picture is made worse when we realize that many hospitals and much of our professional personnel are in the very heart of our cities and so would be lost in an attack.

There seems to be two possible ways of meeting this problem: (1) Emergency

expansion of existing hospital facilities, and (2) Emergency hospitals.

Under emergency or disaster conditions, hospitals can for a short time double or even triple their capacity. This has been well documented and numerous hospitals throughout the country have tested their disaster plans as a result of tornadoes, fires, explosions, train wrecks, etc. It should not be necessary to have to "sell" hospital administrators on the necessity of disaster preparedness, but in a recent survey in a nearby state only 10 out of more than 700 hospitals reported that they had a disaster plan. We believe such plans should be prepared in advance of need, should be maintained up to date, should be well rehearsed and should contain as a minimum, provisions for evacuation if necessary, for increased staff both professional and nonprofessional, for additional supplies including food and equipment, for auxiliary power and other utilities, for additional communications, for additional fire and police protection, and for some means of controlling the public.

Even hospitals in communities far removed from target areas have a responsibility not only for their own protection should tornadoes or fires strike, but for the support of cities which have been attacked. If all hospitals throughout the country would prepare to increase their capacity on an emergency basis an unknown but probably very large number of additional beds would thus become available.

Even with expansion of existing hospitals to their maximum capacity there would still not be enough beds to accommodate all the casualties from a wide spread nuclear attack. Realizing this, FCDA has developed a 200 bed emergency hospital patterned after the Army MASH Unit but with some differences. The MASH Unit is designed for 60 beds, the FCDA Emergency Hospital, 200. The MASH Unit operates under canvas tents. FCDA believes that a better arrangement is to convert an existing building into a hospital. Large school buildings particularly the one story rural consolidated and high or junior high schools could be easily and quickly converted to hospitals. Desks and school furniture could be easily removed and a single classroom could quickly become a 20 bed ward. Most schools have physics or chemistry laboratories suitable for conversion into clinical laboratories. There are generally ample toilet facilities and usually plenty of parking space. Usually these schools have kitchen and cafeteria facilities.

There are 288 separate items of equipment and supply in the FCDA Emergency Hospital. These come boxed in cartons, crates, boxes, etc., and can be transported in one large furniture van. The equipment requires about 2,000 cubic feet of storage space, and occupies about 15,000 square feet of space when fully set up. It can be set up by some 25-30 workmen and 4 supervisors in about four hours.

The hospital is complete in every respect. It has its own water and power supply, 3 operating rooms, x-ray with separate generator, central supply room, sterilizers, dental equipment, clinical laboratory chest, suction apparatus, splints, bandages, drugs, instruments and supplies for 200 patients for nearly a week.

The staffing pattern includes 10 doctors, 20 nurses, 125 trained auxiliaries and 75 untrained auxiliaries. It has been suggested that existing hospitals and medical societies in towns and communities surrounding critical target areas sponsor these emergency hospitals and be responsible for recruiting and training the volunteer staff.

The emergency hospital is available through the FCDA Contribution program with FCDA paying half of the $22,000 cost. Two of these 200 bed hospitals have been sent to this Region at Federal expense for demonstration and exhibition purposes. One of these has gone to Houston, the other to Fort Sam Houston, Texas. There is a possibility that another one of these units will come to Louisiana. Title to the hospital will remain

in FCDA but it is anticipated that it will be rotated from place to place in the State beginning in New Orleans.

Anticipating that supplies and equipment will be used up rapidly under emergency conditions, FCDA has stockpiled quantities of medical and surgical supplies and equipment at strategic points throughout the nation. Two such stockpiles are in this Region, one at Lake Charles, La., where some $8,000,000 worth of supplies are stored; the other at Camp Swift, Texas.

HEALTH PROTECTION

2. Health protection is the second division of FCDA Medical Services. Realizing that the best protection against the superweapons is distance and the greater the distance the greater the protection, many cities and states are studying the possibility of evacuating the entire population of metropolitan areas—given a few hours of warning time. Some cities have actually had evacuation exercises—Shreveport, Mobile, and Seattle to mention only a few. These of course only involved a portion of the cities, were for only an hour or two at most, and the evacuees then returned to homes and businesses still intact. But what if the "test" had extended into weeks and months because homes and businesses were in total ruin as a result of enemy attack?

Only those who have witnessed the unplanned mass exodus of refugees from war torn European or Korean cities can visualize the problem, but we know the basic needs of such refugees and we should plan now to meet those needs. Such plans actually are under way in the Survival Studies now underway in Louisiana, Texas, Arkansas and elsewhere. These needs include a pure milk and water supply, proper sewage and garbage disposal, adequate clothing and housing, rodent, fly and insect control, adequate and properly prepared food, control of communicable diseases, provision for special groups such as infants, the aged, diabetics, cardiacs, pregnant women, hospital and medical care for the sick and injured—the list could go on and on. Our cities over a period of years have of course provided these services for their residents, but to provide these services on a few hours notice for countless thousands of displaced workers is an almost insurmountable task and will require the utmost efforts and cooperation of practically all governmental and volunteer organizations, and FCDA has the task of overall guidance, planning, and coordination.

RADIOLOGICAL DEFENSE

3. Radiological Defense is the third division of FCDA Medical Services. This program went into high gear early last year after AEC disclosed that the 1954 Bikini test explosion resulted in sufficient radioactivity in a down wind belt about 140 miles long and 20 miles wide to have seriously threatened the lives of nearly all persons in the area who did not take protective measures.

FCDA is working with the Weather Bureau in seeking to improve forecasts of radiological fallout pattern. Currently under development is a means of rapid aerial survey of a predicted fallout area to determine the intensity of the radiation. Under stimulation from FCDA the radiation detection industry has developed instruments to determine accurately the amount of radiation over a given area and to measure its intensity. These instruments are available to states and cities under the Contributions program with FCDA paying half the cost. Training programs to train CD workers in the use of these instruments are underway in many states and cities, and FCDA matching funds are available to support these programs. To date about 19,000 CD workers have been trained as radiological monitors and monitor leaders, while 400 have been given advanced training. Meanwhile, the program of radiological defense training is being expanded to include the latest information on radioactive fallout and the training of more volunteers to use radiation detection instruments.

CHEMICAL DEFENSE

4. Chemical Defense is the fourth divi-

sion of the FCDA Medical Services. The so-called "Nerve Gases" developed by the Germans during Hitler's lifetime are as far ahead of the poisonous gases of World War I in their ability to cause disability and death as the nuclear weapons of today are ahead of the high explosives used in World War I. High concentrations of the vapors from these substances, or the liquid itself splashed in the eye or even on the unbroken skin can be fatal in as little as two or three minutes. It is known that our potential enemy has these gases in quantity and it is believed that he will not hesitate to use them when and where they will serve his purpose. The only known antidote is atropine in large doses —up to 1/10 grain by intramuscular or intravenous injection, but to be effective it must be given at once. The gas masks of World War I are ineffective against this gas, but masks have been developed which do give protection. These are available under FCDA matching program and should be stockpiled by CD officials in critical target areas where CD workers might have to perform their duties in areas which may have been subjected to gas attacks. A gas detection kit has been developed which will identify this gas and differentiate it from a number of other poisonous gases. This too should be stockpiled by the CD unit in critical target areas.

SUMMARY

In summary, FCDA together with State and local Civil Defense organizations has the responsibility for training personnel and developing organizations that can provide adequate medical and hospital care for the hundreds of thousands of casualties that will result from nuclear attacks on our cities. The care of casualties under attack conditions is altogether different from the care of casualties under peace time conditions, and our physicians need postgraduate training in the proper handling of large numbers of severely injured patients. Some ways and means of meeting this challenge have been suggested.

USE OF PROMAZINE IN PSYCHIATRIC PRACTICE; AN EARLY STUDY

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Anxiety, the typical response of the individual to emotional tension and conflict, has been termed the "income tax of civilization".[1] Under the stimulus of stress, the normal intellectual and emotional mechanisms of the stable personality come to the rescue, with ultimate satisfactory resolution of the situation by an integrated effort. In the presence of a deep-seated defect of personality or character structure, however, anxiety may find expression in an incapacitating illness attended by physical as well as abnormal psychological manifestations. The victim of an anxiety neurosis, in his resistance to the problems and responsibilities of life, may exhibit a wide range of abnormal reactions, including excessive irritability, hyperactivity, agitation, depression, phobias and hypochondriacal symptoms.

Evidences of neurotic or even psychotic tendencies may have been part of the life pattern of some patients from an early age; in others the fundamental difficulty may be so slight that abnormal reactions appear only in the presence of severe stress. Saul's formulation[2] of "specific emotional vulnerability" embodies the thinking of present day psychiatry. Simply, his concept states that "how and when any individual will succumb depends, in the main, on the violence, duration and nature of the stresses bearing on the specifically vulnerable part of his personality". An individual's vulnerability is determined in part by constitutional factors of which little is known, and in part by his emotional development as influenced by the environment. Schizoid personality traits and paranoid ideas may be present without other evidence of psychosis. Some patients live in a constant state of un-

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easiness, dejection or despondency, and many may at times have self-destructive drives. The percentage of suicides among psychoneurotic individuals has been reported as greater than in some more acute nervous disturbances.[3]

In older persons, the periods of agitation, confusion and other lapses in behavior may be interspersed with rational intervals. Although such disturbed episodes may be intermittent and brief, care of the afflicted member in the family environment may be inadequate or impracticable under modern social conditions. Nursing homes frequently do not accept such patients, and there is no recourse but commitment to an institution. Consequently, in the last three decades there has been an alarming increase in the population of senile and other disturbed but not frankly psychotic patients in mental hospitals.[4] Not only is the patient transferred to a new and strange environment (which frequently causes further decompensation of the patient's emotional and intellectual status), but also already overburdened services may be diverted from those patients more responsive to hospital care.

Prolonged and intensive psychotherapy greatly relieves the neurotic and psychoneurotic. The basic immaturity of this general group has frequently been emphasized, together with their need of positive directive treatment.[4, 7] However, often the patient is poorly oriented or not motivated toward even brief psychotherapy and also the frequent office visits required may place too great a financial strain on the families of many patients, so that full courses of treatment are often out of the question.

The introduction of chemical compounds that favorably modify mood and behavior has provided a valuable adjunct in the treatment of the mentally ill. "Drug-assisted psychotherapy"[8] now holds great promise for many of the mentally disturbed.

Substances with the "narcobiotic" action of Decourt[9] have supplanted the older hypnotics and sedatives which merely stupefied the hyperactive patient by depressing the higher cortical centers. The newer drugs, especially those of the phenothiazine series, are believed to inhibit certain metabolic functions of living cells, particularly of nervous tissue, yet cause little or no depression of the nervous system itself. Thus harmful reactions, following aggressions transmitted by the nervous system itself are lessened in intensity, so that the patients under narcobiotic medication display a general tranquility with greatly reduced response to disturbing stimuli.

Chlorpromazine and the Rauwolfia derivatives had had rather extensive trial in the psychiatric field. The enthusiasm of the early investigators, working with the acutely agitated in institutions, has been tempered by later recognition of the many drawbacks and risks inherent in the use of both substances. Unfortunately, exploitation of these agents has sometimes led to random use, with delay in application of proven methods and aggravation of complications.[10]

The crude extract of Rauwolfia serpentina and the compounds crystallized from it do exert a quieting influence without hypnosis in some patients. Chlorpromazine is believed to act on the arousal (awakening) mechanism in the reticular substances of the brain, but the pharmacology of the substance is still not completely understood. This compound also has been useful in institutional practice as an adjuvant to psychotherapy,[11] but has proved of limited value in private practice as a supplement to conventional psychiatric measures.[12] Although more advantageous than the barbiturates and other hypnotics, many reports of toxicity from both drugs have appeared in the literature within the past two years.[13] Severe and even fatal cardio-respiratory difficulties have occurred in psychiatric patients who received electroconvulsive therapy after medication with reserpine or chlorpromazine.[14]

Promazine, another member of the

phenothiazine series, has exhibited, in animal [15, 16] and clinical [17-19] studies a similar desirable effect on central nervous system functions. Omission of the chlorine radical (apparently unnecessary for ataractic action) from the molecular structure of promazine is believed to provide hope in avoiding the pronounced depressive activity often associated with the chlorinated compound, chlorpromazine; it might also be a factor in diminishing the number of side effects. With the hope of investigating this, the following study was made.

Thirty patients suffering from symptoms of agitation or depression were seen in private office psychiatric consultation, during hospitalization or through an outpatient clinic. Six were chronic alcoholics, of whom 3 were treated initially for active or impending delirium tremens. Two patients were considered to be mild demerol addicts (one had taken 250-300 mg. daily for the past year, while the other had been taking demerol for the past six years and had increased his intake whereby for the previous year he had been taking 250-400 mg. demerol in addition to a pint of whiskey daily).

The patients ranged in age from 23 (an unhappily married mother of two children) to 86 (a senile psychotic woman with a history of several hospitalizations for treatment of agitated depression and paranoid ideation). The median age in the series was 56 years. Overt neurotic symptoms had appeared in most cases a few months to many years prior to when first seen, having been precipitated by a personal crisis, such as financial reverses, illness, grief, advancing years or necessity for a drastic change in living pattern. Questioning sometimes elicited an admission of lifelong "nervousness". Others had extensive histories of frequent treatment over many years for anxiety, agitation and depressive episodes, and some presented serious nursing problems. Phobias, hypochondriacal and paranoid ideas were usually a prominent part of the clinical picture, and schizophrenic tendencies were detectable in several. A significant per cent either had threatened suicide or admitted suicidal ideation.

All had had various medical and psychiatric treatment in previous years. Some had had one or more courses of psychotherapy, with temporary benefit; and 8 had obtained relief at various times from shock treatment. Eight patients had been treated with standard hypnotics; mood-elevating drugs had been used in 5, reserpine in 6, meprobamate in 3 and meprobamate with chlorpromazine in 2 with no improvement.

Eighteen patients had received chlorpromazine in recommended dosages. Five of these had no relief. In the others agitation was lessened but the medication had to be stopped in one day to five weeks because of lethargy in 5, jaundice in 2 and urticaria or generalized rash in 2. Only 5 showed a discernible clinical improvement without development of significant side effects. In evaluating the percentage of side effects as enumerated above, it should be emphasized that often the indication for instigation of promazine in the patients of this report was that the patients either had no benefit from chlorpromazine or else had developed side effects. Thus the percentage of side effects with chlorpromazine in this series would appear unduly high.

In some cases oral medication with promazine * was begun at the time of the first visit or on admission to the hospital; in the majority, however, promazine was administered only after several days' to several months' trial of other measures. The dosage was individualized.

For 11 patients in the series, the average effective total daily dose was 400 mg. (100 mg. three times a day before meals and 100 mg. at bedtime). Twelve required 500 to 600 mg. daily, and 6 obtained sufficient relief on 200 to 250 mg. per day. One patient received 75 mg. daily.

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* Sparine (Trademark) hydrochloride, Promazine hydrochloride supplied by Wyeth Laboratories.

Two of the alcoholics, both acutely inebriated, received promazine intravenously immediately, one in a dose of 200 mg., and the other, of 150 mg.

Some were taking promazine but for a few days, while several are still being maintained on it after four months. The majority received the medication from four to seven weeks. From this study, it appears that the appropriate dose for promazine should be roughly double the recommended dose of chlorpromazine.

RESULTS

Twenty-three of the patients were obviously benefited. (Electroshock therapy was also utilized and certainly played an important role in the improvement of three severely depressed patients). In many cases a favorable change in the clinical picture could be recognized by the second or third day; in others, the improvement was more gradual. Patients who responded showed progressive lessening of irritability and less tendency to weep or give way to emotional outbursts; persecutory and bodily delusions were reduced. With continuance of treatment there were fewer somatic complaints, nausea was checked, and a normal appetite was restored. Some patients gained weight moderately, as 5 or 10 pounds in four to six weeks of medication. This was considered the natural result of improvement in food intake as depression and tenseness subsided. With increased calmness, comfort and sleep, the patients usually returned to the adjustment basic to their underlying condition. Under the influence of medication they responded more readily and effectively to psychotherapy. Thus they generally could achieve a happier outlook and view their difficulties in a more sensible perspective with the aid of fewer psychiatric interviews.

The patients of advanced age who had presented serious management problems could be handled more easily. As agitation was diminished and the sensorium improved, the formerly helpless or irresponsible became better able to feed themselves and care for their needs. Joint pains and stiffness diminished in an arthritic subject, and in a patient with pronounced hypertension the blood pressure approached normal levels.

Several in whom medication was interrupted experienced a recurrence of agitation and associated symptoms, often in only twenty-four hours. On resumption of the drug the previous improvement was restored. One alcoholic who had been admitted in impending delirium tremens was treated effectively with promazine for five days and discharged. Medication was continued for two days afterward, then stopped. His tension recurred, and one week after discharge he began to drink again. On admission to the hospital a second time, he again responded well to promazine, was discharged after eight days of treatment, and had done well up to the time of the last report, a period of about five weeks.

In 2 other alcoholic patients the response to promazine was dramatic. One who had a long history of chronic alcoholism, was seen at his home with impending tremens. He had received sodium amytal by vein from his family physician and appeared confused, tense and apprehensive. He refused hospitalization even though he was unable to retain any food or fluid. An intravenous injection of 200 mg. promazine was administered; he immediately fell asleep, slept for sixteen hours, awoke sober and was able to tolerate oral feedings at once. He was placed on maintenance therapy with promazine by mouth, and returned to work forty-eight hours after the initial injection. In recovering from previous debauches he had often required hospitalization and special nursing services, including intravenous feedings for at least four or five days. Another alcoholic patient was not as severely agitated as the above. He received 150 mg. promazine intravenously, slept soundly for five to six hours, was mentally clear on awakening, and also could retain oral feedings immediately.

The most dramatic results with proma-

zine concern the use of this drug intravenously. Here it is manifoldly more effective, even for a long period, than when given intramuscularly. The patient who had both an alcoholic and demerol problem was given 100 mg. demerol upon admission. Then two hours later 200 mg. promazine was administered intravenously, and the patient slept for fifteen hours. He was able to be aroused for meals and was maintained on 300 mg. promazine intravenously and 200 mg. orally for the next three days. He ate well, slept most of the time and the only symptoms exhibited were some slight increase in perspiration and occasional yawning. On the fifth day he was put on a dose of 100 mg. promazine three times daily, and two days later this was discontinued with no untoward effects.

Like chlorpromazine, promazine is effective as an anti-anorexiant. Anorexia in depressives has profound psychodynamic implications to the patient as well as being harmful to the patient's physical health. Accordingly, when promazine was used in depressed individuals it was given one hour before each meal.

In 7 patients treatment during the period of promazine administration provided little or no benefit. Two subsequently improved with a course of electroshock treatments. Five had suffered depressive episodes for many years, and in the personality structure of all, schizophrenic components predominated. Particularly for the 2 older patients, both of whom present unusually difficult behavior problems, long term prognosis is guarded.

SIDE EFFECTS

Sixteen of the patients experienced no side reactions of any sort on any dosage of promazine (12 of these tolerated total daily doses of 500 to 600 mg.—used during the initial treatment).

Four reported a soporific effect, but this was not as pronounced as the lethargy experienced previously with chlorpromazine. Somnolence was controlled by reduction of the dose and sometimes by the addition of an amphetamine compound. Intensification or precipitation of a depression, as frequently seen and reported with chlorpromazine, was not significant when promazine was used. Only 1 patient apparently became more depressed while taking promazine.

Two patients reported photophobia in the first two to four days of medication (on the higher dosages), which then disappeared without treatment. Promazine was continued without interruption, six weeks in one case, seven weeks in the other, without recurrence of the photophobia.

One patient developed an urticaria after five doses of 25 mg. promazine, but this subsided on antihistaminic medication and discontinuance of the promazine. What is of special significance was the finding that in 2 patients who had benefited from chlorpromazine, the drug had to be discontinued because of dermatological reactions which did not respond to antihistaminic therapy. In one of the patients promazine was instigated five weeks after the discontinuance of chlorpromazine and in the other, promazine was instigated within twenty-four hours of discontinuance of chlorpromazine. In both of these cases, the patients developed no side effects and improved otherwise to the same extent as with chlorpromazine.

No untoward circulatory effects developed in any patient in the series. A gradual and moderate fall in blood pressure usually occurred, which was consistent with the quieting action of the drug. In this series there was no evidence of neurotoxic reactions, blood dyscrasias, or hepatic dysfunction.

Even in the 2 patients who had become jaundiced previously on chlorpromazine, no jaundice appeared during promazine therapy. One of these patients who became jaundiced after four months of chlorpromazine therapy now has been taking promazine for one month without evidence of jaundice, while the other patient who became jaundiced after one month of chlorpromazine administration has now been taking promazine over two

and a half months without any side effects.

Dryness of the mouth was reported by 7. This effect, and perhaps the photophobia, may be related to the atropine-like action of the phenothiazine compounds. When dryness of the mouth persisted beyond the first few days of treatment, and the dose could not be reduced without significant lessening of ataractic action, administration of 5 mg. pilocarpine with each dose of promazine appeared to control the symptom.

DISCUSSION

Promazine appears to be an effective ataraxic which controls symptoms of acute agitation well. The compound is valuable for the management of some agitated depressions and is of particular benefit for the alcoholic and senile patient. By quieting and controlling the behavior problems of elderly individuals, even those with intellectual defects that interfere with effective psychotherapy can more often be satisfactorily cared for in the home environment. Thus the all too inadequate institutional facilities at present available may be reserved for the patients who more desperately need them. When hospitalization is necessary, they provide less of a management problem if given promazine.

A favorable clinical response may also be obtained in certain selected neurotic patients in whom depressive periods have been precipitated by a crisis of some sort. In fact, for these the prospect of continued satisfactory adjustment is now better than ever before. For patients whose neurotic reactions have been part of a lifelong pattern, however, the results may be less encouraging.

When tensions are eased and relaxation is achieved by medication, the typical depressed individual seen in private practice becomes more accessible to psychotherapy and in many instances can be restored to a satisfactory social and economic status by shorter courses of the conventional psychiatric treatment. Thus effective psychotherapy may be brought more within the financial means of more families. Eight of the patients in this study commuted 60 to 120 miles for psychotherapy.

The prevalent impression concerning the failure of ataractic drugs in the depressive states might stem from the fact that the majority of the reports are from institutions where these compounds were used in the frankly psychotic depressions. Depressed patients seen in private practice are frequently the agitated neurotics whose periods of excitation are recent in origin.

Thirty private patients presenting symptoms of neurotic or psychotic behavior problems were treated with promazine. Six were alcoholics, three of whom were admitted in active or impending delirium tremens. Two were considered to be borderline drug addicts.

There was a favorable change in the clinical picture in 23 patients. All the patients received psychotherapy of varying degrees; many were given other medications in addition to promazine, several received the benefits of hospitalization, and 3 were given electroshock therapy. The 7 not aided by drug therapy continued to exhibit depressive, anxiety

TABLE 1
SERIES OF 30 PATIENTS TREATED WITH PROMAZINE

Patients Benefited:	No. of Patients:	Patients Not Benefitted:	No. of Patients:
Agitation and depression in senile patients accompanied by physical illness	7	Anxiety state in pseudoneurotic schizophrenic	1
Schizoid personality and depression	1	Depression and phobic content in paranoid schizophrenics	2
Neurotic depression with typical vegetative manifestations	6	Chronic latent paranoid schizophrenic with bodily delusions	1
Anxiety state with depression, latent schizophrenic	1	Neurotic depression with phobias, anxiety and typical vegetative manifestations	3
Borderline (or mild) drug addiction	2		
Alcoholism	6		

and pseudoneurotic symptomatology which had been part of a lifelong pattern.

No patient (except for the one with urticaria) experienced side effects troublesome enough to cause cessation of medication, which was continued from a few days to four months. The average period of treatment has been four to seven weeks. Sixteen experienced no side reactions of any sort. Dryness of the mouth, reported in 7 cases, may be related to the atropine-like action of the compound. When this symptom persisted beyond the first few days of treatment, and the dose could not be reduced without significant lessening of the ataractic action, 5 mg. of pilocarpine administered with each dose of promazine appeared to provide satisfactory control. Thus far a cardinal value of the drug as compared to chlorpromazine, lies in the decreased frequency and severity of lethargy and absence of major side effects. Thus the dose may be increased more readily to the therapeutic level of the individual patient.

SUMMARY

This paper concerns the addition of a new tranquilizing drug to the present armamentarium and obviously is an early and limited study. It should be fully kept in mind that promazine has not yet had the wide and more lengthy clinical application of some of the other tranquilizers. Thus far, it appears generally to be as effective as any of the other tranquilizers and does not have many side effects. It apparently is less depressing and soporific. In this series, it was substituted in 2 cases each where cutaneous reactions and hepatic dysfunction had arisen with chlorpromazine and in none of the 4 cases did the side effect recur. The cardinal use of promazine to date seems to be in the treatment of the senile agitated person and the drug and alcoholic addicts, although it is also of definite value in other conditions.

Valuable as are the ataractic compounds, however, it must always be remembered that they cannot be expected to alter the underlying disease, and that indiscriminate and ill-advised use of such agents is to be deplored.[10] Administered properly in combination with time-proven measures, such drugs are of great advantage for the management of the mentally disturbed. New drugs do not alter the fact that the most frequently used drug in the practice of medicine still remains the physician himself.

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MANAGEMENT OF COMBINED EXTERNAL NASAL AND SEPTAL DEFORMITIES *

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The nasal septum is almost invariably involved in external nasal deformities and demands primary consideration if optimum functional, anatomic, and cosmetic results are desired when correction is attempted. If the nasal septum is not properly managed at operation, it will have a tendency to drag the surrounding structures out of their corrected positions when healing occurs and so cause a recurrence of the deformity and interference with nasal respiration. Choice of a reparative operation, therefore, depends upon the degree and character of the septal deflection.

There often appears in the general plastic surgery literature the statement that the external nasal correction and the septal correction should not be combined. However, the rhinologist trained in nasal plastic procedures knows that there are many instances when it is impossible to restore normal nasal respiration without simultaneously correcting the external deformity and the deviated septum; on the other hand, it would be impossible to place the septum in a normal position without an accompanying nasal plastic operation. Thus, it is evident that specialized training gives the otolaryngologic plastic surgeon an insight that enables him to probe more deeply into the dual aspects of rhinology and plastic surgery and enables him to treat more adequately the highly complicated cases which resist usual stereotyped operative procedures.

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TYPES OF COMBINED NASAL DEFORMITIES

For ease and clarity of discussion, the external nose should be visualized as being divided into a bony portion and two cartilagenous portions, an upper and a lower. Combined septal and external nasal deformities may then be considered under the following headings:

1. Septal deformities associated with deflections in the lower cartilagenous vault only.
2. Septal deformities associated with deflections in the upper cartilagenous vault only.
3. Septal deformities associated with deflections in both the upper and lower cartilagenous vaults.
4. Septal deformities associated with humping or saddling but with no deflection of the bony vault from the midline.
5. Septal deformities associated with deflections of the bony vault, with or without humping or saddling.

SEQUENCE OF THE OPERATIVE STEPS

In all of these cases, satisfactory results will depend as much on the sequence of the operative steps as on the care with which each step is carried out. Irrespective of the location of the obstruction, the following procedure should be followed:

1. Uncover the bony and cartilagenous portions of the nose.
2. Repair or remodel the lower cartilaginous vault if necessary.
3. Shorten the nose if necessary.
4. Remove the external nasal deformity.
5. Correct the septal deformity.
6. Narrow the nose.
7. Replace cartilage between the septal membranes if possible.

The nose is shortened before the septum is corrected because this procedure sometimes eliminates, or markedly lessens caudal dislocations or deviations, as will be

seen later. The hump removal precedes the submucous resection in order that the integrity of the septal membranes will not be jeopardized. The septal deformity is corrected next so that it will not interfere with the narrowing or proper positioning of the nasal bones. Thus, there is good reason for meticulous attention to operative sequence. However, it should be understood that, while the above is a broad outline, certain improvisations may have to be made to meet the situations posed by the individual case; it has been truly said that there is no such thing as a routine nasal plastic for not two operations are exactly alike.

SEPTAL DEFORMITIES ASSOCIATED WITH HUMPING OR SADDLING BUT WITH NO DEFLECTION OF THE NOSE FROM THE MIDLINE

Figure 1 is an example of this type of deformity. It is considered first because it is the simplest type to correct.

Underlying the bony hump deformity, the nasal septum was markedly thickened, both the upper portion of the septal cartilage and the adjacent perpendicular plate of the ethmoid being involved; the septal deformity was clinically proven to be the cause of rather severe and prolonged headaches with which the patient suffered. Correcting the external deformity without simultaneously correcting the thickened septum would have been virtually impossible inasmuch as the nasal bones could not have been approximated or properly realigned, and the patient would have had a flat, wide nasal dorsum postoperatively.

The technic used in the submucous resection was essentially that described by Killian [1] in 1899, but access to the offending portion of the septum was through the transfixion incision. Only that portion of the septum which was producing symptoms and which interfered with narrowing the nose was removed.

SEPTAL DEFORMITIES ASSOCIATED WITH DEFLECTIONS IN THE LOWER CARTILAGENOUS VAULT ONLY

The most frequent deformity of this type is the familiar caudal dislocation of the nasal septum as seen in Figure 2. Occasionally, this may be corrected by shortening the nose. If this is not possible, the technic we have found most satisfac-



Figure 1



Figure 2

tory is a modification of the one devised by Goldman.[2]

Through an incision in one side of the columella, a cartilage batten is introduced, care being taken that it extends below the level of the nasal spine to the premaxilla in order that postoperative retraction of the columella will be prevented. Through a transfixion incision the caudal margin of the septum is then exposed and the septal membranes elevated bilaterally from the floor to the roof of the nose and as far towards the nasopharynx as the deviation requires. Through the same incision, the nasal spine is exposed, modelled, placed in the midline following fracture, or excised, as necessary. The anterior portion of the septal cartilage is severed from the maxillary crest and correction of the deformity carried out by making the first of two vertical incisions ¼ inch beyond the transfixion, thereby producing segment 1; a second vertical incision is made ¼ inch posteriorly and parallel to the first, producing another freely movable segment (segment 2), which acts as a buttress to segment 1. Any desired amount of cartilagenous or bony septum posterior to segment 2 is then removed. The maxillary crest is then trimmed or straightened as indicated. The mucoperichondrium is then reattached to the perichondrium by means of mattress sutures. Several septocolumellar sutures are next inserted to close the transfixion incision.

It should be pointed out that, in such deformities, the convex side of the mucosa is shorter than the concave side; therefore, the excess mucosa on the latter side must be excised so that the cartilage will not be pulled over to the shorter side when healing occurs. Sometimes it is necessary to place a mucosal graft in the floor of the nose on the short side to equalize such membrane tension. It should be noted that the upper lateral cartilages are not cut from the septum in this procedure.

SEPTAL DEFORMITIES ASSOCIATED WITH DEFLECTIONS IN THE UPPER CARTILAGENOUS VAULT ONLY

Such deformities are very rare, usually being associated with deflection in both the upper and lower cartilagenous vaults. Therefore, repair of this type will be discussed under that heading.

SEPTAL DEFORMITIES ASSOCIATED WITH DEFLECTION IN BOTH THE UPPER AND LOWER CARTILAGENOUS VAULTS

In these deformities, the ventral margin of the septum may be straight but deviated from its central position, or it may present a C-shaped or S-shaped deviation.

If the ventral margin of the septum is straight, but deviated from its central position, the upper lateral cartilages are always a party to the deformity, inasmuch as there is one short one (on the side of the deflection) and one long one (on the opposite side). The Goldman procedure may be used to advantage in such cases but must be modified to equalize the lengths, and so the postoperative pull, of the upper lateral cartilages; this is done by excision of a portion of the longer cartilage intramucosally after it is cut from the septum. In addition, we have found it desirable to remove a wedge, or sliver, of cartilage from the septum in a vertical direction at the point where the deviation begins, which is usually at the level of the lower border of the nasal bones.

When there is a C-shaped or S-shaped deformity of the ventral margin, the upper lateral cartilages are always involved and require trimming, straightening, or cross hatching. Here in order that the septal membranes may remain suspended and not be lost in the nose, the upper lateral cartilages are cut from the septum submucosally. The septum is then removed, after which the upper lateral cartilages are treated as indicated. The maxillary crest and the nasal spine are corrected if required, and a batten of cartilage is introduced between the membranes and fixed to the upper lateral cartilages by mattress sutures; such a batten must extend from the nasal dorsum to the maxillary crest and, inferiorly, to the trans-

fixion incision. Such battens are usually inserted after the nose has been loosely packed, the thought being that the packing helps to keep them in the midline; we have additionally perforated the battens and notched their borders so that the intermembranous fibrous tissue formed would prevent slipping, but we feel that the single most important factor in the prevention of postoperative recurrence of the septal deformity is equalization of membrane tension. Figure 3 demonstrates this deformity and its correction.

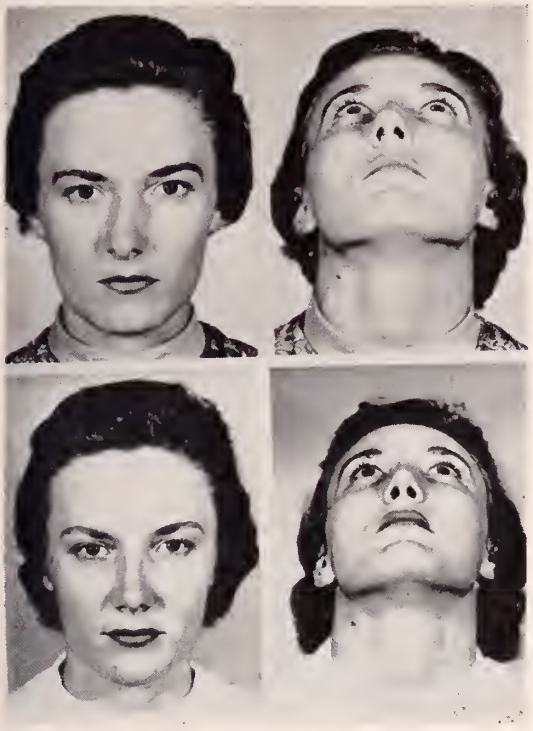


Figure 3

SEPTAL DEFORMITIES ASSOCIATED WITH DEFLECTION OF THE BONY VAULT, WITH OR WITHOUT HUMPING OR SADDLING

In such instances it may be necessary to use a combination of procedures. It is always necessary, however, to equalize the lengths of the nasal bones, the upper lateral cartilages, and the septal mucoperichondrium, to straighten the nasal and frontal spines and the maxillary crest, and to guard against columellar retraction. Furthermore, as we have mentioned previously, the proper sequence of operative steps must be followed. Finally, in some deformities, it may be necessary to insert a graft the length of the dorsum if properly aligning the nasal elements results in a lack of projection.

Figures 4-A and 4-B are examples of this type of deformity.



Figure 4-A. For cosmetic purposes, this patient requires a chin implant which is planned at a later date.



Figure 4-B

SUMMARY

1. The different types of combined external nasal and septal deformities are discussed.

2. Procedures used in their correction are outlined.

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A STRANGE CASE OF DYSTOCIA * (DUE TO FECALITH IN RECTOSIGMOID POUCH)

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NEW ORLEANS

Masses which may obstruct the birth canal and impede vaginal delivery are commonly classified into four main categories; namely, vulvovaginal, uterine, ovarian, and extragenital.[1] Vulvovaginal lesions such as lymphopathia venereum and vaginal cysts only occasionally cause dystocia.[2] On the other hand, carcinoma of the cervix in a patient at term is an indication for cesarian section.[3] Uterine myomata usually rise out of the pelvis at term, and seldom obstruct labor.[4] While ovarian tumors complicating pregnancy usually cause no interference with vaginal delivery, they are ordinarily removed during the second trimester.[5, 6] Some of the extragenital lesions which may inhibit normal delivery are bony abnormalities, pelvic kidneys, retroperitoneal tumors, and carcinoma of the rectum.[7, 8] The distention of the rectum is a rare cause for pelvic obstruction. The following is a report of a patient belonging to the latter group.

CASE REPORT

Mrs. M. L. was a twenty year old white female who was first seen at the Charity Hospital at Lafayette, Louisiana, in 1951, with a history of passing feces through the vagina since birth. She had had amenorrhea for three months prior to this time. There was a markedly distended abdomen. Pelvic examination revealed the presence of a fistulous opening between the rectum and a point just inside the vaginal orifice. Although the patient was thought to be pregnant at the time, none of the pelvic organs was palpable because of the distention. The anus was found to be imperforate. The distention was felt to be due to fecal retention, and x-rays of the abdomen confirmed this impression but otherwise revealed nothing of note.

She was taken to surgery and a transverse loop colostomy with decompression was performed. After recovery from her first operation, and after evacuation of multiple fecal impactions from the large bowel, she was again taken to surgery where the fistulous tract was closed, and anorectal continuity reestablished. The colostomy was allowed to remain, however, and the rectum soon became stenotic in spite of attempts at dilatation. Two months after the second procedure the patient spontaneously delivered a six-pound stillborn infant at another hospital. She did not return for follow-up examination, and therefore remained with double loop colostomy.

In October 1955, the patient again presented herself at Lafayette Charity Hospital. She was at full term gestation and in early labor. Physical examination revealed a functioning transverse colostomy. The fundus measured 37 centimeters in height and the fetal heart tones were normal. On pelvic examination the cervix was well effaced and 1 centimeter dilated. The vertex was very high above the inlet due to the presence of a mass about 9 centimeters in diameter located within the true pelvis and to the left. This mass was stony hard, but slightly movable, and gave the patient an effective true conjugate of only 4 to 5 centimeters. The rectum was stenosed and would not admit an examining finger.

X-ray pelvimetry indicated adequate bony diameters, but confirmed the presence of the pelvic mass.



Our impression was that this represented an impacted fecalith due to spillage into the "blind" distal colostomy loop. Since this was a fixed and unyielding mass and the patient was in active labor, a decision was made to deliver her by cesarean section. A Munro-Kerr type operation was done under spinal anesthesia, and a viable infant weighing 7 pounds, 15 ounces delivered. Exploration of the pelvis disclosed that the mass previously described was located in the rectosigmoid colon, and a second smaller mass approximately 6 centimeters in diameter was present in the sigmoid above the first. The bowel wall at these points appeared ischemic and atrophic. The abdomen was closed in layers and the patient's postoperative course was uneventful.

Although the patient had readily consented to the cesarean section, she refused to be con-

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sidered a candidate for any further corrective surgery. She was happy and well adjusted to her colostomy, and failed to appear for her postoperative check-up after discharge from the hospital.

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RISKS OF BLOOD TRANSFUSIONS

The transfusion of blood from one individual to another, which was a comparatively infrequent occurrence three generations ago, is now commonplace. Painstaking study by thousands of investigators has made available a medical resource of great therapeutic value and frequently of life-saving therapy. The vast majority of transfusions are completed with no untoward events. However, in spite of meticulous care, untoward reactions continue to occur in a certain percentage, and the importance of these reactions, while recognized by the clinician, has to be balanced against the therapeutic benefit of the procedure. In assessing the dangers, in contrast with the benefits, two groups of phenomena have to be taken into consideration and viewed in the light of both medical and the medicolegal implications.

The first of these is the group of disturbing occurrences, or untoward reactions, which may develop within the first forty-eight hours. Unexpected events observed within this time are looked upon by competent blood bank directors as possibly due to the transfused blood, and are a signal for a systematic investigation of the whole immunohematological picture, in order that it may be clarified. Symptoms may develop with reference to any of the major organ systems. Untoward reactions, however, are usually grouped under the following headings concerning which a brief discussion is regarded as being in order. Those listed are: allergic, chemical, cardiovascular, bacterial, thermal, hemolytic and pseudohemolytic, to which must be added psychogenic reaction, although the cause of such is not within the field of material objects.

The allergic reaction is the most common and is due to the existence in the blood of the donor, of substances, perhaps food products, to which the recipient is sensitive. These may be disturbing but are seldom serious.

Chemical reactions are those considered to be due to some substance which has been added to the blood as a technical or therapeutic procedure. Vitamin concentrates may be regarded as an example.

Bacterial reactions are at present uncommon, although the elimination of such bacteria as may cause them has made necessary certain types of preparation techniques and sterilization procedures not previously understood or needed.

Cardiovascular reactions are those caused by alteration of the blood volume in an individual who is in marginal or obvious congestive failure and who is un-

able to compensate for the added work on the heart.

Thermal reactions may vary from a temperature of 99 for several days up to one of 104, more or less. Such reactions have been the source of concern since transfusion was first undertaken. It is worthy of note that as the many factors entering into the reactions that take place between the blood of two individuals have been understood, the danger and frequency of thermal reactions has been progressively decreased.

The hemolytic reactions are the special field of the immunohematologist and are regarded as being due to incompatibility factors which cannot always be detected in routine typing and matching. With the present standards of care and caution, they are infrequent but their danger is ever present.

Pseudohemolytic reactions may occur in recipients who have blood dyscrasias and are believed to be due to protein substances in the donor's plasma.

In a series of whole blood transfusions, administered under conditions as carefully controlled as team work and organization requirements can produce,* 26,439 transfusions were given in the six years, 1950 to 1955. Untoward reactions were reported in only 676, which is an average of 2.55 per cent. The commonest of these was the allergic reaction occurring in 420 instances, followed by the thermal reaction in 128, with high fever in 42 additional patients. Chemical reactions were noted in 24. There were 4 hemolytic reactions without deaths; 2 pseudohemolytic without deaths; 24 chemical reactions; and 2 cardiovascular.

The other type of danger from whole blood or blood component transfusions refers to homologous serum jaundice. Certain authorities have calculated that at the present time there is a 1 per cent risk of a patient who receives a pint of blood developing homologous serum jaundice within the succeeding year. The incubation period has been regarded as two to four months with an average of three. However, it is now known that it may develop up to a year. It is stated that plasma is even more apt to produce jaundice and that no method of plasma preparation is sufficient to insure that jaundice cannot develop. It is interesting to note in this connection that the method of allowing the plasma to remain at room temperature for six months to a year was followed in some instances by the development of jaundice, but at a greater incubation period up to a year.

Reflection on considerations such as these indicates clearly that when a transfusion is ordered the benefits to be obtained should clearly override the risks involved. It is also a matter of no small importance that the physician who orders the transfusion, and the hospital and organization which give it, should have in the signed permission given by the patient a statement assuming the inevitable risk. Competent immunohematologists have quoted themselves as looking on a pint of blood as a package of dynamite. We are thankful to them that the dynamite explodes so rarely.

* Private communication from Dr. J. W. Davenport, Director of the Blood Transfusion Service, Southern Baptist Hospital, New Orleans.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

AMA MEETING
June 11-15, 1956

This summary covers only a few of the many important subjects dealt with by the A. M. A. House of Delegates at the recent meeting in Chicago.

Hospital accreditation, evaluation of graduates of foreign medical schools, private practice by

medical school faculty members, federal aid to medical education and premature publicity on new drugs were among the major subjects acted upon by the House of Delegates at the American Medical Association's 105th Annual Meeting held June 11 - 15 in Chicago.

Dr. David B. Allman, surgeon of Atlantic City, N. J., was named unanimously as president-elect for the coming year. A member of the A.M.A. Board of Trustees since 1951 and also chairman of the Committee on Legislation, Dr. Allman will become president of the American Medical Association at the June, 1957 meeting in New York City. He will succeed Dr. Dwight H. Murray of Napa, Calif., who took office at the Tuesday evening inaugural program in the Chicago Civic Opera House.

The House of Delegates selected Dr. Walter L. Bierring of Des Moines, Iowa, as recipient of the 1956 Distinguished Service Award of the American Medical Association for his long and outstanding contributions to medicine and humanity. Dr. Bierring, a past president of the A.M.A., was honored for his achievements in the fields of public health and medical examining board work. He formally accepted the award at the Tuesday inaugural program.

Total registration at the end of the fourth day of the meeting, with half a day still to go, had reached 22,394, including 9,793 practicing physicians and 12,601 residents, interns, medical students and guests.

Hospital Accreditation

The House of Delegates approved the report of the Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals, which was appointed by the Speaker as a result of action taken at the June, 1955, meeting. The Committee came to the following conclusions:

"1. Accreditation of hospitals should be continued.

"2. The Joint Commission should maintain its present organizational representation.

"3. The Board of Trustees should report annually to the House of Delegates on the activities of the Joint Commission.

"4. Physicians should be on the administrative bodies of hospitals.

"5. General practice sections in hospitals should be encouraged.

"6. Staff meetings required by the Joint Commission are acceptable, but attendance requirements should be set up locally and not by the Commission.

"7. The Joint Commission should not concern itself with the number of hospital staffs to which a physician may belong.

"8. The Joint Commission is not and should not be punitive.

"9. The Joint Commission should publicize the method of appeal to hospitals that fail to receive accreditation.

"10. Reports on surveys should be sent to both administrator and chief of staff of hospital.

"11. Surveyors should be directly employed and supervised by the Joint Commission.

"12. Surveyors should work with both administrator and staff.

"13. New surveyors should receive better indoctrination.

"14. Blue Cross and other associations should be requested not to suspend full benefits to non-accredited hospitals until those so requesting have been inspected.

"15. The American Medical Association should conduct an educational campaign for doctors relative to the functions and operations of the Joint Commission.

"16. The Committee also suggests that the American Medical Association and the American Hospital Association encourage educational meetings for hospital boards of trustees and administrators either on state or national levels to acquaint these bodies with the functions of accreditation.

"17. This Committee asks to be discharged upon submission of this report to the House of Delegates."

The House also approved a reference committee suggestion that the following statement be added to strengthen the report:

"The Committee recommends that the commissioners to the Joint Commission on Accreditation of Hospitals, appointed by the Board of Trustees of the American Medical Association, urge that Commission to study:

"1. The problems of the exclusion from hospitals and arbitrary limitation of the hospital privileges of the general practitioner, and

"2. Methods whereby the following stated principles may be achieved:

" 'The privileges of each member of the medical staff shall be determined on the basis of professional qualifications and demonstrated ability.

" 'Personnel of each service or department shall be qualified by training and demonstrated competence, and shall be granted privileges commensurate with their individual abilities.' "

Graduates of Foreign Medical Schools

The House of Delegates approved in principle a program for the evaluation of graduates of foreign medical schools seeking hospital positions in the United States. The proposed program was developed by the Cooperating Committee on Graduates of Foreign Medical Schools, representing the A.M.A. Council on Medical Education and Hospitals, American Hospital Association, Association of American Medical Colleges and Federation of State Medical Boards of the United States.

The following principles were emphasized by

the Council on Medical Education and Hospitals in its report recommending A.M.A. participation in the program:

"1. Although the responsibility to share educational opportunities in medicine is recognized, the primary concern must be for the health care of the American public. Thus, before assuming responsibility for the care of patients as interns or residents, all graduates of foreign medical schools (immigrants, exchange students and American graduates of foreign medical schools) should give evidence, as nearly as can be measured, of having reached a level of educational attainment comparable to that of students in American schools at the time of graduation.

"2. The primary objective of this Committee is to devise an effective mechanism for measuring educational attainment in the absence of intimate and continuing knowledge of the educational background of foreign-trained physicians. This mechanism should provide hospitals with pertinent information regarding the medical qualifications of foreign-trained physicians seeking positions as interns or residents. It should not interfere with the hospital's privilege of making its own selection among qualified physicians, nor should it serve as a substitute for or interfere with the normal licensure procedures of the various state boards.

"3. It is not intended that this mechanism be applicable to those foreign medical school graduates in this country as temporary students participating in programs of medical and related studies in recognized universities, medical schools and postgraduate schools, who by the very nature of their study are not involved in the responsibility of patient care."

The proposed plan calls for reestablishment of a central administrative organization to evaluate the medical credentials of foreign trained physicians desiring to serve as interns or residents in American hospitals. Basic requirements would include satisfactory evidence of at least 18 years of total formal education, including a minimum of 32 months in medicine exclusive of any time which in this country would be considered as premedical study or internship. Applicants with satisfactory credentials then would take a screening examination to determine their medical knowledge and their facility with the English language. Successful applicants then would be certified to hospitals and other interested organizations, with the approval of the foreign-trained physician concerned.

Private Practice by Medical School Faculty Members

Another major action by the House involved the problem of private practice by medical school faculty members, which has been under study by the Committee on Medical and Related Facilities of the Council on Medical Service. The House adopted a Council report which stated "that it shall be the policy of the American Medical Association that funds received from the private practice of medicine by salaried members of the clinical faculty of the medical school or hospital should not accrue to the general budget of the institution and that the initial disposition of fees for medical service from paying patients should be under the direct control of the doctor or doctors rendering the service."

It was further recommended that adequate liaison be developed and maintained between each county medical society and any medical school or schools in its area; that the Council on Medical Education and Hospitals and the Association of American Medical Colleges urge all medical schools to assist and work with medical societies in developing such liaison, and that publicity emanating from a medical school should be in good taste and of a type which has the approval of the general medical community in that area.

The adopted report also said: "It is not in the public or professional interest for a third party to derive a profit from payment received for medical services, nor is it in the public or professional interest for a third party to intervene in the physician-patient relationship."

Federal Aid to Medical Schools

One of the most controversial subjects of debate on the floor of the House was a resolution expressing strong opposition to S. 1323, a bill in Congress providing for one-time, matching grants to medical schools for construction purposes. The Association in recent years has been supporting such legislation in principle, with certain reservations concerning details of some provisions. The House reaffirmed that policy by approving a reference committee statement which said:

"We appreciate the intent with which this resolution was introduced, but at the same time we feel that there are many economic and geographical factors involved, which might not make this resolution practical on a national level. Inasmuch as no evidence was offered to this Committee to justify a change in the previously declared policy of the House of Delegates, your Committee recommends that this resolution be not adopted."

Premature Drug Publicity

The House adopted a substitute resolution which read:

"Whereas, In recent years, events have indicated the necessity for a closer liaison between the pharmaceutical manufacturer and the American Medical Association; and

"Whereas, In view of the tremendous number of new drugs being developed and the expanding research programs in medical colleges, clinics

and hospitals being financed by the drug industry, it is imperative that the manufacturer and the medical profession develop cooperatively guiding principles which will protect the American people from being subjected to the premature release of information pertaining to new products or techniques; and

"Whereas, Competition within the pharmaceutical industry has become extremely keen so that in the advertising of their products drug manufacturing firms have been forced into the expenditure of larger and larger sums of money and in increasingly broader fields of advertising; therefore be it

"Resolved, That the Board of Trustees of the American Medical Association appoint a liaison committee to meet with representatives of the pharmaceutical manufacturers to accomplish this objective."

Miscellaneous Action

Among many other actions on a wide variety of subjects, the House also:

Approved a Board of Trustees statement on Social Security which included the following: "It is imperative that we distinguish clearly between this problem of coverage of physicians and the far more dangerous disability proposal. The fact should be recognized that the shape of medical practice in the future is not directly related to the inclusion or exclusion of physicians under OASI. It is a matter of vital importance to us as individuals, but it cannot, per se, stimulate further government intrusion into medical care. On the other hand, the disability amendment obviously brings the Social Security Administration closer to the regulation of medical care than ever before."

Adopted a resolution amending the Bylaws to provide that the Vice President, Treasurer, Speaker and Vice Speaker of the House of Delegates shall be ex officio members of the Board of Trustees with all the rights and duties of the Board without the right to vote.

Increased membership of the Council on Medical Service from six to nine active or service members and eliminated all ex officio members except the immediate Past President.

Directed the Council on Medical Service and the Council on Industrial Health to reconsider the "Guiding Principles for Evaluating Management and Union Health Centers" through their joint Committee on Medical Care for Industrial Workers and to so revise the guides that they conform completely with the Principles of Medical Ethics.

Authorized the Committee on Federal Medical Services to make a continuing study of all aspects of VA medical activities under the basic policy established in June, 1953, and suggested reconsideration of the temporary exceptions made at that time with respect to neuropsychiatric and tuberculous disorders.

Recommended that the Board of Trustees select New York City as the place of the 1961 annual meeting.

Opening Session

At the Monday opening session Dr. Elmer Hess, outgoing A.M.A. President, warned that the medical profession must be prepared to face an all-out drive by some labor groups for national compulsory health insurance. Dr. Dwight H. Murray, then President-Elect, told the House that general practitioners and specialists must guard against "any cleavage within our profession," and he urged strength through unity.

Dr. Lowell T. Coggeshall, special assistant to Secretary Marion B. Folsom of the U. S. Department of Health, Education and Welfare, assured the House that the over-all objectives of HEW are in accord with those of the A.M.A. A memorial plaque honoring the late Dr. Carl M. Peterson, secretary for 17 years of the A.M.A. Council on Industrial Health, was presented by Dr. Ross McIntire on behalf of the President's Committee on Employment of the Physically Handicapped. The Illinois State Medical Society presented a check for $164,940 to the American Medical Education Foundation.

Inaugural Program

Dr. Murray, in his inaugural address at the Tuesday evening ceremony in the Chicago Civic Opera House, declared that "what we need most in medicine today is to find some way of combining modern scientific methods with the personal, friendly touch of the old-time family doctor." The inaugural program, which included the Bluejacket Choir of the U. S. Naval Training Center at Great Lakes, Ill., was telecast over Station WBKB in Chicago.

Election of Officers

In addition to Dr. Allman, the new President-Elect, the following officers were elected:

Dr. F. S. Crockett of Lafayette, Ind., Vice President; Dr. George F. Lull of Chicago, Secretary; Dr. J. J. Moore of Chicago, Treasurer; Dr. Vincent Askey of Los Angeles, Speaker, and Dr. Louis Orr of Orlando, Fla., Vice Speaker.

Dr. Julian Price of Florence, S. C., was reelected to the Board of Trustees, and Dr. Hugh Hussey of Washington, D. C., was named to succeed Dr. Allman. Dr. Robertson Ward of San Francisco was elected to the Judicial Council to succeed Dr. Walter F. Donaldson.

Reelected to the Council on Medical Education and Hospitals were Dr. Guy A. Caldwell of New Orleans and Dr. John W. Cline of San Francisco. Dr. Walter E. Vest of Huntington, W. Va., was named to succeed Dr. Louis A. Buie on the Council on Constitution and Bylaws.

Elected to the Council on Medical Service were Dr. Carlton Wertz of Buffalo, N. Y., to succeed himself, and Dr. J. F. Burton of Okla-

homa City to succeed the late Dr. A. C. Scott, Jr. of Texas. Named for the three new places created on the Council on Medical Service were Dr. Thomas Danaher of Torrington, Conn.; Dr. R. M. McKeown of Coos Bay, Ore., and Dr. Lafe Ludwig of Los Angeles.

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

LYMPHOGRANULOMA VENEREUM SURVEY

Dr. N. P. Sinaly, Consultant, Section of Venereal Disease Control, Louisiana State Department of Health, surveyed 110 male inmates of the Orleans Parish Prison in January, 1956. The Frei test and the lymphogranuloma venereum complement fixation test were used in the survey. All positive reactors to either test were examined. Only one white male of 43 tested had a positive Frei test. The L.G.V.C.F. test was non-reactive. This patient exhibited no clinical evidence of active disease. Eight of 67 Negro males reacted positively to the Frei test but only two of these had a reactive L.G.V.C.F. test, and neither of these had evidence of active disease at the time of interview and examination. All eight of the Negroes who reacted to the Frei test gave a history of antecedent lesions compatible with lymphogranuloma venereum. A rectal and genital examination was performed on each reactor.

NEWS ITEM

At the annual meeting of the Louisiana Dermatology Society, recently held in New Orleans, Dr. David F. Bradley was elected President and Dr. Raphael Ross, Jr., was elected Secretary and Treasurer for 1956-57.

PSYCHIATRIST ISSUES HYPNOTISM WARNING

Hypnotism can be a useful tool in the hands of a qualified specialist, but it can be "downright dangerous" when used by an irresponsible person, reports a New York psychiatrist.

Writing in the February Today's Health, published by the American Medical Association, Dr. James A. Brussel, Willard, N. Y., warned against the indisciminate use of hypnotism by lay persons to "cure" symptoms—both physical and mental—and to develop delusions such as "mastery of the mind."

He said three principles regarding hypnotism to which medical science subscribe are: 1. Where hypnotism removes symptoms, and illness may be obscured and prolonged, since causes are not treated. 2. Where hypnotism treats emotional symptoms instead of causes, more serious personality defects may occur. 3. Where hypnotism evokes delusions, habits of thought as harmful as drug addiction may be formed.

Hypnotism can be useful, especially in psychotherapy, by relieving certain symptoms and manifestations. However, these very gains are exploited by untrained and irresponsible persons, Dr. Brussel said.

DOCTORS LEAVE BANDAGES OFF SURGICAL WOUNDS

Further evidence of the safety and practicality of leaving clean chest and abdomen surgical wounds uncovered by dressings was given recently by three Des Moines, Iowa, Veterans Administration hospital physicians.

They said in the Feb. 18 Journal of the American Medical Association that clean wounds without dressings appear to heal more rapidly and with less reaction than covered wounds.

In addition, the nondressing of such wounds is convenient, saves surgical dressings costs and the time of doctors and nurses, and eliminates the cumbersome dressings and irritation of adhesive tape, Drs. Louis T. Palumbo, Philip J. Monnig, and Dudley E. Wilkinson said.

The method was first recommended before 1920, but has not been used extensively, they said.

BOOK REVIEWS

Differential Diagnosis, the Interpretation of Clinical Evidence; by A. McGehee Harvey and James Bordley III, Philadelphia, Pa., W. B. Saunders Co., 1955, Pp. 665, Price $11.00.

For many years the clinical-pathological conferences at the Johns Hopkins Hospital were held by the late Dr. Louis Hamman and Dr. Arnold R. Rich. Dr. Hamman's discussions became renowned as models in the approach to clinical diagnosis and in the interpretation of clinical evidence. The authors of the present volume acknowledge their great debt to their former teacher and colleague in the preparation of this volume, and Hopkins students of years past will surely recognize his impress on its pages.

The book is divided into (1) a brief general introduction, (2) a series of chapters devoted to common clinical problems such as heart failure, pain in the chest, hematemesis and melena, jaundice, etc. (3) a longer chapter dealing with special diagnostic problems, including certain rare diseases, and (4) a group of 11 problem cases on which the reader will be able to try his diagnostic skill.

Each chapter dealing with a given clinical problem begins with a general discussion, in which are included very useful tabular listings of diagnostic possibilities. Then follows a group of case presentations which have been chosen almost entirely from the files of "C.P.C.s" given at Hopkins. As one would expect from its source, the quality of the discussions sampled by the reviewer is uniformly excellent.

Let the warning be given that this is not a book to be read through in several sittings; indeed, one case history after another is for most a veritable literary obstacle course. However, it can be used with much pleasure and profit by student or physician when faced with a specific clinical problem. In this situation the student and house officer will be greatly helped in organizing their thoughts about a case and I believe in planning the hospital work-up. More experienced physicians will find it useful in preparing case discussions, and especially in preventing the embarrassing sin of failing to consider the retrospectively obvious diagnostic possibility. There is a well chosen bibliography at the end of each chapter and an index.

The reviewer's main criticism of the volume is the brevity of some of the general discussions which precede the case presentations. A few of these are little more than slightly padded lists.

E. B. Ferguson, Jr., M. D.

Ion Exchange and Adsorption Agents in Medicine. The Concept of Intestinal Bionomics; by Gustav J. Martin, Sc. D., Boston, Mass., Little Brown & Co., 1955, Pp. 333, Price $7.50.

The growing therapeutic use of ion exchangers in medicine has led to a need for a coverage of the theoretical and clinical sides of this field. In the opinion of the reviewer, this need could have been filled much better by an author without bias. This book serves the author's purpose, as avowed in his preface, of "substantiation of my major theme", that is, of acting as sounding board for his hobby-theory of autointoxication as the cause of "all chronic degenerative disease".

The reviewer is not competent to evaluate the clinical section, but he is competent to recognize such faults as the author's obvious unfamiliarity with the work of Cohn, et al., displayed by gross misrepresentation on page 48. Further, the reviewer questions the coincidence whereby toxic materials are absorbed on resins, etc., while nutrients are not. This is the impression given in the latter half of the book, while the earlier sections parrot experiments indicating adsorbent affinities for nutrients.

An obvious kinetic explanation turns upon the intestinal absorption (into the blood) of nutrients and their consequent drop in concentration within the intestinal lumen. Operating in the opposite direction is the intestinal excretion of toxins; the direct result of build-up of their concentration would be increased absorption by resins, etc. The simultaneous liberation of nutrients and uptake of "toxins" is effected in a mutually helpful mechanism not unlike the release of O_2 and pickup of CO_2 by blood within a muscle.

This book could be freely recommended by this reviewer only to those already well versed in the theoretical and clinical phases of ion exchange and adsorption. The author's contentions remain, in his own words, "unsubstantiated by clinical investigation".

J. E. Muldrey

PUBLICATIONS RECEIVED

The C. V. Mosby Co., St. Louis: Diseases of the Skin, by Richard L. Sutton, Jr., M. D. (11th edit.).

W. B. Saunders Co., Phila.: The Morphology of Human Blood Cells, by L. W. Diggs, M D., Dorothy Sturm, and Ann Bell, B.A.; Physical Diagnosis, by Ralph H. Major, M. D., and Mahlon H. Delp, M. D., (5th edit.).

Charles C Thomas, Publisher, Springfield, Ill.: Techniques and Procedures of Anesthesia, by John Adriani, M. D. (2nd edit.); Human Perspiration, by Yas Kuno, M. D., edited by Robert F. Pitts, M. D.

A RESEARCH MILESTONE

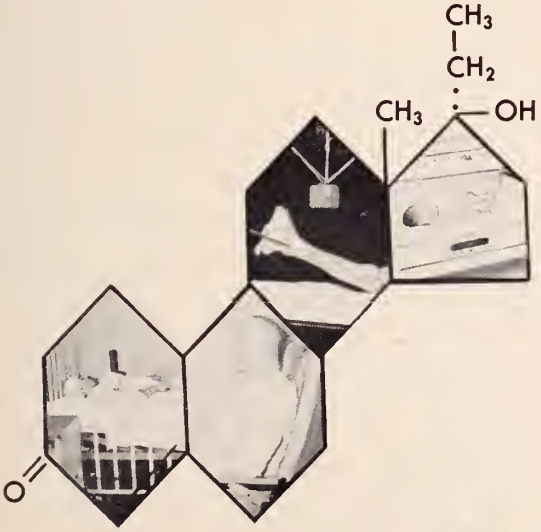
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THE FIRST STEROID WITH ANABOLIC SPECIFICITY—Nilevar, the newest Searle Research development, therefore, meets a long desired clinical need because Nilevar presents the first steroid primarily anabolic for protein synthesis. Moreover, Nilevar is without prominent androgenic effects (only about one-sixtecnth of that exerted by the androgens).



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infections in surgery

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For example, Albertson and Trout[1] have reported successful results with tetracycline (ACHROMYCIN) in diverticulitis, gangrene of the gall bladder, tubo-ovarian abscess, and retropharyngeal abscess. Prigot and his associates[2] used tetracycline in successfully treating patients with subcutaneous abscesses, cellulitis, carbuncles, infected lacerations, and other conditions.

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[1]Albertson, H.A. and Trout, H. H., Jr.: *Antibiotics Annual* 1954-55, Medical Encyclopedia, Inc., New York, N.Y., 1955, pp. 599-602.

[2]Prigot, A.; Whitaker, J. C.; Shidlovsky, B. A., and Marmell, M.: *ibid*, pp. 603-607.

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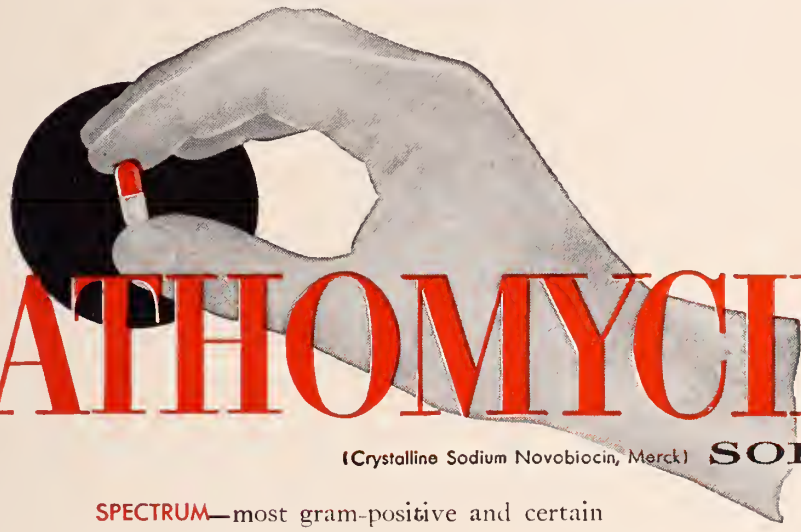
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ACTION—bactericidal in optimum concentration even to resistant strains.

TOXICITY—generally well tolerated. This is more fully discussed in the package insert.

ABSORPTION—oral administration produces high and easily-maintained blood levels.

INDICATIONS—cellulitis, pyogenic dermatoses, septicemia, bacteremia, pneumonia and enteritis due to *Staphylococcus* and infections involving certain strains of *Proteus vulgaris;* including strains resistant to all other antibiotics.

DOSAGE—four capsules (one gram) initially and then two capsules (500 mg.) twice daily.

SUPPLIED—250 mg. capsules of 'CATHOMYCIN', bottles of 16.

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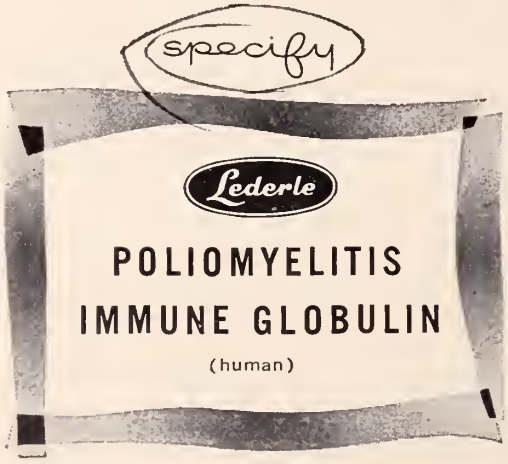
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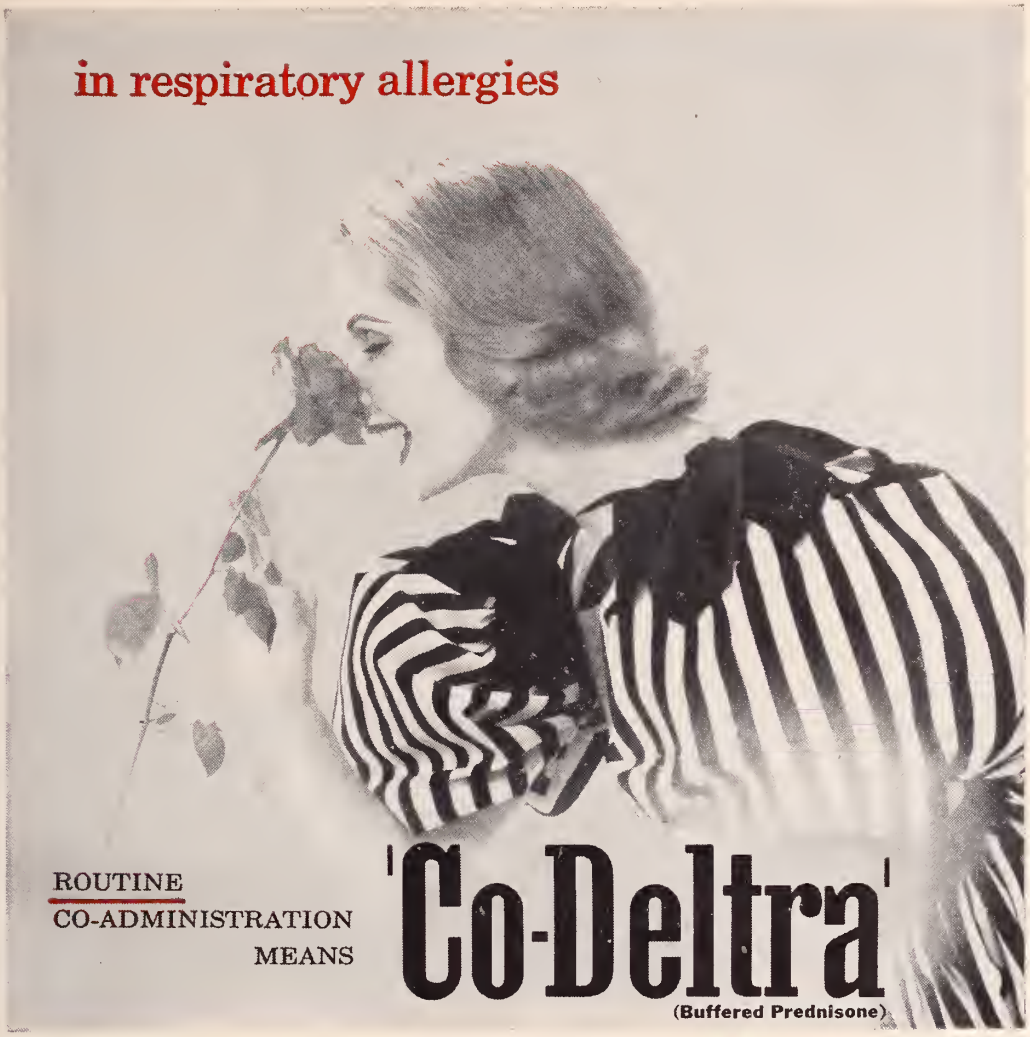
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*Modell, W.: The Relief of Symptoms, Philadelphia, W. B. Saunders Company, 1955, pp. 265-266.

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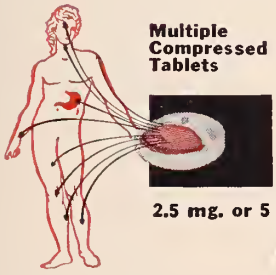
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MEANS

'Co-Deltra'
(Buffered Prednisone)

'Co-Hydeltra'
(Buffered Prednisolone)



Multiple Compressed Tablets

Clinical evidence[1, 2, 3] indicates that to augment the therapeutic advantages of prednisone and prednisolone, antacids should be *routinely* co-administered to minimize gastric distress.

2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

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References: 1. Boland, E. W., *J.A.M.A.* **160**:613, February 25, 1956. 2. Margolis, H. M., *et al.* *J.A.M.A.* **158**:454, June 11, 1955. 3. Bollet, A. J., *et al.* *J.A.M.A.* **158**:459, June 11, 1955.

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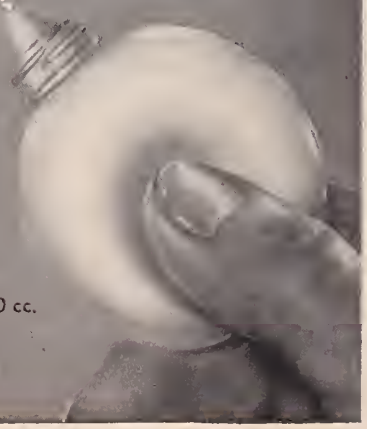
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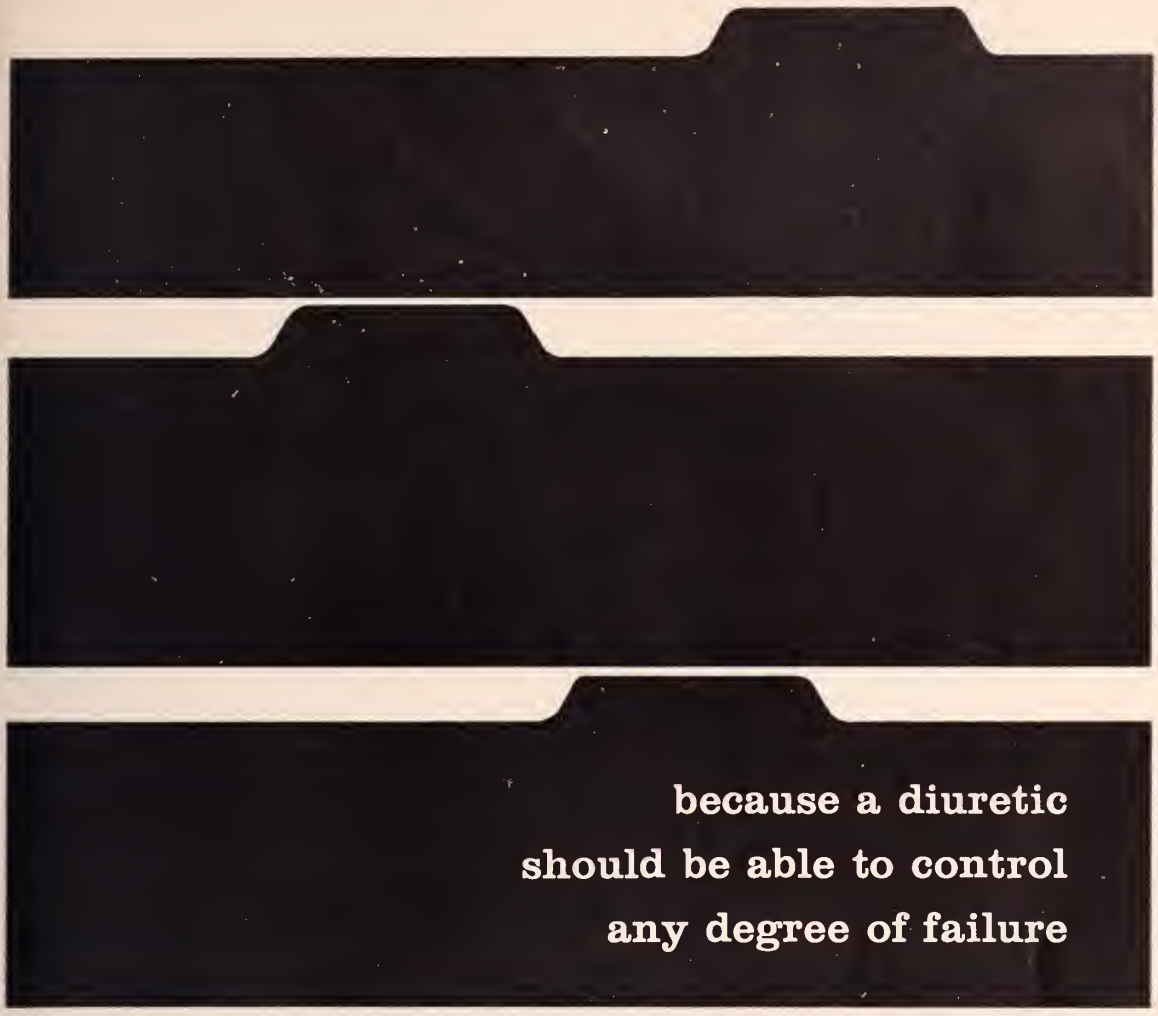
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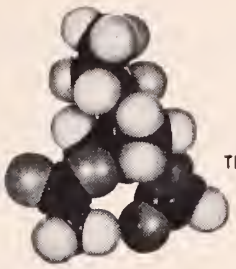
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1. Johnston, T. G., and Cazort, A. G.: J. Allergy 27:90, 1956. 2. Schwartz, E.: New York J. Med. 56:570, 1956. 3. Schiller, I. W., et al.: J. Allergy 27:96, 1956.

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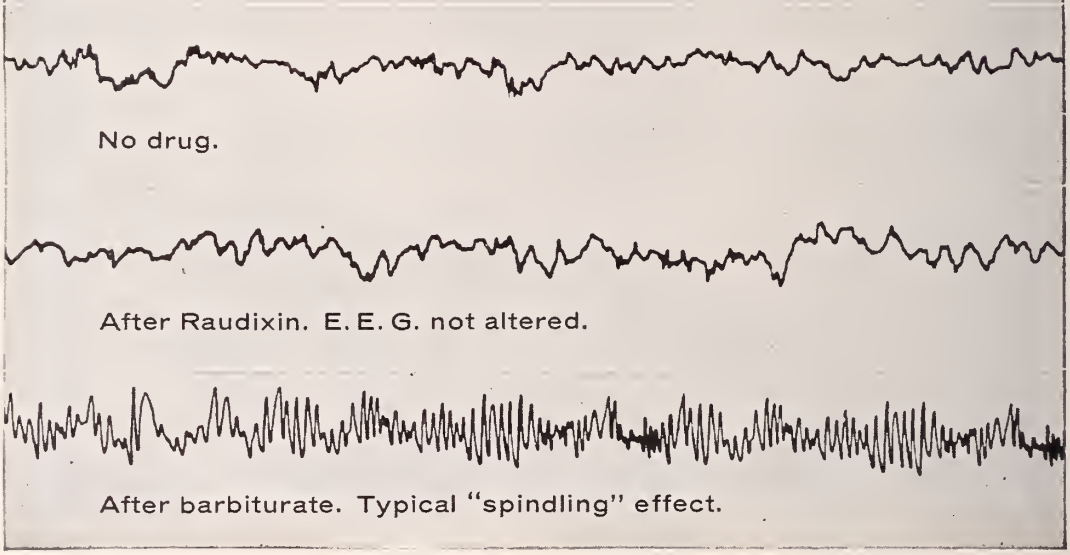
References: 1. Hollander, J. L., *Ann. New York Acad. Sc.* **61**:511, May 27, 1955.
2. Hollander, J. L., *et al. J.A.M.A.* **158**:476, June 11, 1955.

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Only meat is meat.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

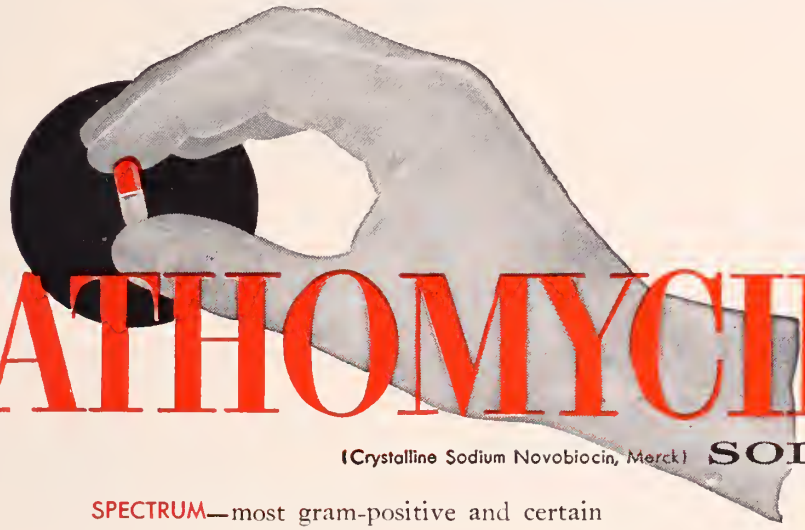
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DOSAGE—four capsules (one gram) initially and then two capsules (500 mg.) twice daily.

SUPPLIED—250 mg. capsules of 'CATHOMYCIN', bottles of 16.

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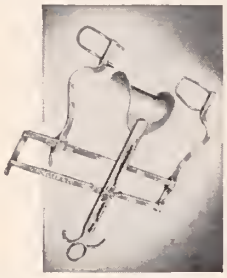
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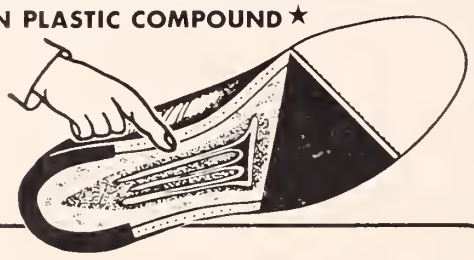
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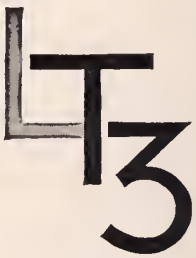
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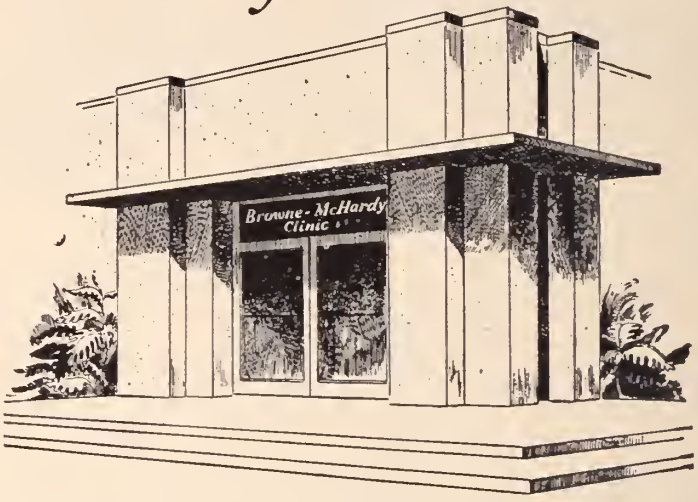
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THE ARTERY BANK AND ARTERIAL GRAFTS
PART I. THE ARTERY BANK *

REICHARD KAHLE, M. D. †
NEW ORLEANS

INTRODUCTION

Successful replacement of arterial segments of the vascular tree is dependent not only on proper selection of the patient and competency of the surgeon but also on the availability of a suitable graft. An artery bank at present is the only practical means of insuring availability of a proper graft at a given time and place. Since the vessel needed is almost always a large one, an autogenous graft is usually out of the question. It is true that under certain circumstances an antogenous venous graft may be used but its utility is restricted. An artery bank is concerned with selection of the proper material, preparation of the graft for storage, and methods of storage.

This discussion will be presented in two parts. In the first part the various managerial phases of the artery bank, together with a consideration of possible future trends in this field, will be considered. In the second part the physiology, function, indications and results of arterial grafts will be presented. For the past three years an artery bank has been maintained in the Department of Surgery of the Tulane University School of Medicine.‡ The opinions expressed in this paper are based on experiences with this bank, personal communication with some of the outstanding authorities in this field, and various contributions to the extensive literature on this subject.

COLLECTION

Although time and experience have expanded the original specifications under which grafts were collected, certain rules for their collection and storage still must be observed if subsequent mishaps are to be avoided. Obviously, careful records must be kept of deposits and withdrawals in this as in other banks. At the time of collection, a graft should be numbered and the date, length in centimeters, general condition of the vessels and mode of death of the donor should be recorded. A culture should be made before storage. Since frosting of the glass containers in the refrigerator may prevent accurate appraisal of a graft at the time of operation, a description of its branchings and their length is valuable.

Permission from the responsible relative to remove the graft is essential. As the laity becomes acquainted with the life saving role played by grafts, it is conceivable that like eyes, vessels will be bequeathed to banks. This source will prob-

---

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, Alexandria, May 25, 1956.

† From the Department of Surgery, Tulane University School of Medicine, New Orleans.

‡ Under the direction of Dr. P. T. DeCamp and the author. Maintenance and expansion of this bank was made possible by Grant C-393 from the Edward G. Schlieder Foundation.

ably never be as productive as in eye banks because circumstances are not at all parallel. Prospective "donors" of suitable arteries are usually young and death has often been sudden. Anticipation of death then would be doubly unexpected.

Sterile Technic—Grafts may be collected either under sterile conditions or they may be obtained during routine post-mortem examination and later sterilized by chemical means. The chief advantage of the former method of collection is that it obviates the danger of damaging the graft by use of a chemical. However, it is a cumbersome method in many ways. Sterile drapes and instruments must be brought to the morgue and the donor's skin prepared as for a surgical operation. The time limit for obtaining the graft after death should be not more than eight hours, somewhat less leeway than can be allowed in the asterile method. The body should, of course, be refrigerated until the graft is secured. This spells inconvenience for the personnel since the graft may have to be collected in the middle of the night. Also, pathologists or coroners often object to the ritual of a sterile technic in the autopsy room. Finally, in the sterile technic the body cavity from which the graft is taken must be unsoiled by perforation of a hollow viscus. This factor alone limits possibilities since most of the donors have been victims of trauma.

Asterile technic—The ability to collect arterial grafts for storage from routine post-mortem examinations offers tremendous advantages in time and convenience, and greatly increases the number of prospective donors, since contamination of the peritoneal or thoracic cavity does not exclude collection of the aorta or other vessels.

It is difficult, however, to find a means of completely sterilizing a graft without injuring it. One solution to the problem, suggested by Meeker and Gross,[1] is use of irradiation, 2.0 to 2.5 million R. E. P. being employed. However, only a small number of medical centers in the United States have the expensive apparatus necessary to accomplish this.

Two chemicals are at present in common use for sterilizing grafts: ethylene oxide and beta propriolactone. The former, as suggested by Hufnagel, Rabil and Reed,[2] in 1953, is the chemical used for sterilization of grafts in our bank. Although it is apparently an effective sterilizing agent, its inflammability and explosiveness make it dangerous to handle. This difficulty can be overcome by sterilizing the grafts out of doors. A colorless liquid that boils at 10° C., ethylene oxide evaporates easily. It may be obtained in cylinders of various sizes containing from 8 oz. to 175 lb. of the chemical.‡‡ There is less waste by using the larger units but they may be awkward to handle. One solution is to place the drum upside down in a wooden or steel frame leaving enough clearance to place a container beneath the outlet. The liquid may then be drawn off by means of a needle valve.§ It is essential that the drum be placed out of doors and the ethylene oxide be allowed to evaporate in the open, as its explosiveness makes it dangerous in a room or a hood where sparks from a motor or switch could ignite the fumes.

The grafts are placed in sterile open containers and covered with ethylene oxide. The portion that has not evaporated in thirty minutes is decanted off and after a few minutes the container is closed with a sterile cap.

Use of beta propriolactone has been described in a report by Trafas and associates.[3] Its use requires a meticulous technic with particular attention to buffering and proper incubation. De Takats[4] observed two instances of rupture of a graft apparently due to inadequate buffering.

Fisher and coworkers[5] believed that grafts collected at autopsy can be sterilized adequately by use of large doses of antibiotics plus lyophilization. Lyophilization alone does not sterilize a graft. It is well known that viruses survive such drying, but it also, should be realized, as

‡‡ The Matheson Co., East Rutherford, N. J.

§ No. 51-510, The Matheson Co., East Rutherford, N. J.

pointed out by Stark and Harrington,[6] that common bacteria, such as streptococci and B. coli, may survive such treatment.

Time of Collection—Formerly, it was believed that arterial grafts should be obtained within six hours of death of the donor. However, it has been shown that with refrigeration of the body, although delay is not desirable, as much as eight hours may elapse between death and collection of the graft. Deterling[7] indicated that even a longer interval than this may be permissible.

Age of Donor—Originally, it was arbitrarily considered that the age of the donor should not exceed 30 years. Although the arteries of donors older than this will in all likelihood be unsuitable, occasionally pliable arteries free of sclerotic plaques are found in much older individuals. Surprisingly enough, on the other hand, unsuitable vessels may be found in those under 30 years of age. Since adoption of the asterile technic of collection, it has been our custom to base our decision solely on the physiologic rather than the chronologic age of the arteries. When the sterile technic was used, strict adherence to the age limit was necessary to avoid waste of time and effort in unlikely cases.

Infection and Malignancy — A person who has died of a transmissible disease is not a suitable donor of an arterial graft collected under sterile conditions. Even if a graft from a donor dying of infection is sterilized, there still are theoretic and esthetic considerations that make it less desirable. Viruses, for instance, are apt to behave in a bizarre way measured by standards for common bacteria. Presumably, ethylene oxide is effective against viruses but to my knowledge no experimental work has been done on this subject. In cases of chronic infection the objections are obvious. Because of ignorance concerning the nature and transmission of neoplasms, as well as for esthetic reasons, arteries from donors who had malignant disease should be rejected.

Technic of Collection—In the collection of arterial grafts, care should be taken to avoid as much fat and other extraneous tissue as possible. Large branches should be left as long as possible so that they may be used for bifurcation or branched grafts and so that the shorter ones, such as the intercostal or lumbar arteries, may be ligated at the time of operation. If the branch is cut flush with the parent vessel, the defects in the graft must be sewed in order to avoid leakage, a procedure involving considerably more time and trouble than ligation. It is best to postpone ligation and suturing of the branches until just before using, as shrinkage of tissues incident to lowering of temperatures during storage may cause loosening of the ligatures or suture line.

Final stripping and cleaning of adventitia should also be done at the time of application of the graft. Before sterilization with chemicals, however, gross amounts of adipose and perivascular tissue should be discarded.

STORAGE

Quick Frozen Method — Grafts may be stored in one of two ways. They may be quick frozen and placed in a carbon dioxide ice box, or they may be prepared by freeze-drying and kept in vacuum sealed tubes at room temperature. The former method requires less technical knowledge, and is simpler and cheaper. However, the length of time that grafts prepared in this way can be safely kept is limited. The exact limits of safety are not known. In the beginning we discarded grafts stored in this manner after six weeks. However, during the past year we have extended the duration of storage of such grafts to six months with no apparent deleterious effects. To avoid rupture of tissues by slow crystallization it is probably best to freeze the graft as quickly as possible after collection or to freeze-dry it by immersion of its container in a mixture of absolute alcohol and dry ice. This mixture provides a temperature of —78° C.

The carbon dioxide ice box is similar to an ordinary ice chest (Fig. 1). An extra thickness of insulation is desirable. The one we had built measures 30.5 by 26 by 22 inches. A slightly deeper box



Figure 1.—Carbon dioxide ice box with thermos for transporting graft to operating room.

would be more convenient because it would enable storage of grafts in a rack in the upright position. Smaller glass containers may be used but these necessitate bending or coiling of the graft.

Grafts from the carbon dioxide box are carried to the operating room in a thermos container (Fig. 1) in order to prevent thawing until it is certain that they will be used. This prevents wastage.

Carbon dioxide, which is obtained from a local agent,‖ is added as necessary. Ordinarily, three deliveries a week are required. During the past year our refrigerator has required approximately 450 lb. of dry ice a month. If it appears that grafts stored in this manner are not to be used by the end of six months, they are processed for freeze-drying in order to prolong the storage time.

Freeze-drying Method — The apparatus that we use to freeze dry grafts is the same as that employed by Hufnagel and associates.[2] A modification of the type used in commercial food processing (Fig. 2), it consists in a series of glass doublets¶ connected to a vacuum system. A number of less complex units have been described.

‖ Pure Carbonic Co., New Orleans, La.

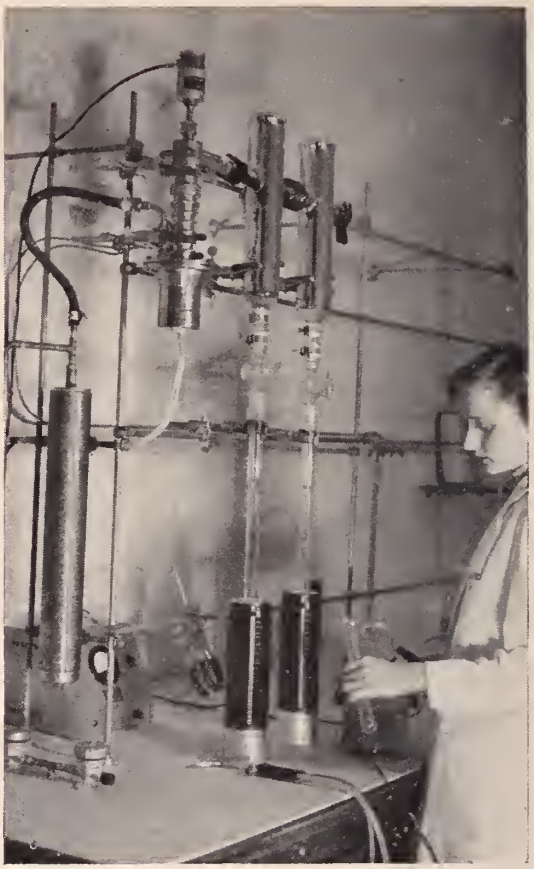


Figure 2.—Apparatus for freeze drying arterial grafts consisting in a series of glass doublets connected to a vacuum system.

The arterial segment in a long pyrex tube¶ is immersed in a bath of alcohol and dry ice and subjected to drying in a vacuum, which is produced by means of two pumps,** a mechanical one that creates a vacuum of about 5 microns and an oil diffusion pump that further reduces the pressure to approximately 1 micron or less. After two or three hours the alcohol-dry ice mixture is removed from about the tubes containing the grafts, and drying is allowed to continue for another six to eight hours. The tubes are then sealed by means of an oxygen torch. This

¶ J. M. Ballingal & Associates, 307 Colorado Bldg., Washington, D. C.

** Central Scientific Co., Chicago, Ill.

last step is not easy since the tubes are thick walled and large in diameter. The glass must be heated evenly and the downward pull must be even, less leakage occur through a fracture of the glass seal. Should this occur, drying must be repeated. A stopcock sealed with vacuum grease, which will allow the tube being sealed to be isolated, is invaluable in preventing loss of vacuum in the rest of the system, should the heat sealing be faulty. The difficulty of sealing these thick tubes under vacuum conditions may be obviated by arranging to flood the system with an inert gas such as nitrogen if desired. The vacuum is checked by means of an ionoscope** and the top of the tube is further sealed against leakage by means of wax. Grafts prepared in this way may be stored at room temperature for an indefinite period. They may therefore be handled and shipped more easily than those stored in the carbon dioxide box.

A graft, vacuum sealed in a pyrex tube, is white and brittle, and suggests a clay pipe (Fig. 3). It can readily be reconstituted, however, to a consistency and appearance indistinguishable from a fresh vessel by immersion in normal saline for a few minutes. A graft that has been stored in the carbon dioxide ice box, on the other hand, is best allowed to thaw slowly for fifteen or twenty minutes before immersion in saline, lest the sudden temperature change fracture elastic fibers and other tissue structures.



Figure 3.—Graft vacuum sealed in pyrex tube. Note brittleness and whiteness.

FUTURE POSSIBILITIES

Establishment and management of an artery bank†† is obviously time consuming and expensive, particularly if the freeze drying method of storage is employed. In addition to supervision by competent and interested medical personnel, a technician trained in processing and storing the grafts, and in recording the material is ideal. It is questionable at present whether the number of grafts in a community the size of New Orleans is sufficient to justify a full time technician. The suggestion that a technician with similar duties at the eye bank be employed for both tissue banks is under consideration.

Any project envisioning establishment of an artery bank must take into consideration the real possibility that ultimate discovery of an ideal plastic prosthesis would render the need for homografts obsolete. Whatever the ultimate decision may be, it is at present generally conceded that the preponderance of evidence is in favor of the homograft. Until this opinion is reversed, the need for an artery bank is real and at times urgent.

ACKNOWLEDGEMENT

The invaluable assistance of the Department of Biophysics, Tulane University School of Medicine, is gratefully acknowledged. Without the cooperation of Dr. Robert Nieset and Mr. L. DeLuca the artery bank could not have become a reality.

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** Central Scientific Co., Chicago, Ill.

†† A committee composed of Drs. Howard Mahorner, J. D. Rives, Allen Goldman, Rowena Spencer and the author is studying the possibility of establishing a community bank.

HEAD PROSTHESIS IN FRACTURES OF THE FEMORAL NECK *

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The ideal result which we seek in the treatment of all fractures is to return the patient to ambulation and a useful life as rapidly and as inexpensively as possible. This ideal can be readily achieved in the majority of fractures involving the upper extremities because these extremities are non-weight bearing. Because of our ability to change weight bearing alignment through the spine by means of braces or casts, it is possible to ambulate patients with certain vertebral fractures within a matter of days from the time that they sustain injury. In fractures of the lower extremities, the strain, thrust, and impaction forces of weight bearing require more nearly complete degrees of bone healing and, consequently, relatively long periods of time before weight bearing can be permitted.

Of these lower extremity fractures, the fractures of the neck of the femur create a constantly recurrent problem because of the number of such cases, because of the long period of morbidity before healing occurs and because of the difficulty of obtaining consistently good results. They are problems not so much from a standpoint of how to get the fracture reduced or how to hold it reduced. They are problems because of the nature of the blood supply to the head of the femur. Since this blood supply to the head of the femur comes up through the neck from the trochanteric region, a fracture of the neck of the femur cuts off the blood supply to the head and the head fragment will not heal no matter how well or how thoroughly the hip is fixed until this blood supply is adequately re-established.

I have heard physicians tell patients that they can walk within two or three months from the date of nailing of a fractured hip. This is an interesting concept, the origin of which is unknown to me because a survey of a large series of these cases shows that healing is not sufficient to permit weight bearing within less than, as a rule, six months and the cold, hard facts of the matter are that frequently nine to twelve months are required before healing is sufficient to properly allow weight bearing. Even after such prolonged periods of disability and inactivity, healing is frequently still insufficient to allow adequate weight bearing and avascular necrosis of the head of the femur supervenes.

Every doctor who treats fractured femoral necks states that he gets good results and yet there are a number of patients whose end results are very, very poor indeed. Their number is so great that this fracture has been alluded to as "the unsolved fracture".

In an attempt to solve the problem of the fractured femoral neck, two lines of action are generally followed. The first is that which is generally considered "conservative". It consists of some form of open or closed reduction and internal fixation. This is followed by a period of a varying number of months of inactivity and, when healing does not occur, various remediable osteotomies can be performed and, after another period of disability, the weakened patient, whose joints are stiffened with disuse, can gradually begin a resumption of activity. This is all too frequently the pattern of the conservative treatment of fractured femoral necks.

Because of the generally good results obtained from the various osteotomies, some surgeons have used these osteotomies as the primary treatment of the fractured neck. Oddly enough the result of the osteotomies used as a primary treatment are not as satisfactory as when they are used in the treatment of a hip fracture that has "gone bad". The reason for this is that in the hip fracture which has "gone bad", the hip muscles are so weakened that they do not constitute an active displacing force on the various bone fragments involved in the osteotomy. In a fresh fracture, these muscles still have active tone and tend to

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, in Alexandria, April 25, 1956.

displace the osteotomy fragments so that even with internal fixation, it is almost impossible to maintain proper alignment of the fragments unless the patient is immobilized in a one and a half spica for about two months. This cast immobilization is, of course, very undesirable and is one of the things we try to avoid in the treatment of fractured hips.

PROSTHETIC CONSIDERATIONS

For some years now, a number of doctors have tried to get around the problem of the healing of the fracture of the femoral neck by substituting an artificial head of the femur and by having this prosthetic device articulate in the acetabulum, the body's weight being transmitted to the distal shaft of the femur, thus ignoring the problem of the healing of the bone and permitting ambulation of the patient within a matter of days from the date of surgery. There have been a number of good results with this type of treatment and there have also been a number of poor results. Some of the earlier prosthetic appliances were made of plastic and it did not take very long to show that plastic does not hold up well in the human body. At the present time, nearly all are made of two metals, stainless steel and vitallium, both of which are well tolerated by the body.

The simplest of these devices consists of a rounded head on a short shaft and, I believe, you will find that the greatest number of unsatisfactory results have been obtained from this type of appliance for the simple reason that adequate support of the thrust of weight bearing is not obtained with prostheses of this type.

The trend at the present time is to prostheses which have a shank which fits into the upper portion of the medullary canal of the bone and a flat shoulder or ledge which rests against the upper portion of the base of the neck of the femur which then functions as an abutment for the transmission of the thrust of weight bearing. Appliances which do not have this shoulder or ledge have been found to knife downward into the upper portion of the shaft of the femur as the patient walks, and are generally not satisfactory. There are a number of variations of this appliance, which is the Eicher prosthesis, namely, the F. R. Thompson, the Moore, and the Scuderi, which has a separate head.

There are three surgical approaches used for the insertion of these appliances. The posterior, the lateral and the anterior. The posterior approach is the deepest and the bloodiest and involves working along the deep posterior border of the acetabulum. I believe it is the least satisfactory. The lateral approach involves the detachment and the re-attachment of two of the hip muscles, the gluteus medius and minimus, and, I believe, it is generally wise to allow some time for healing of the re-attachment of these muscles prior to permitting ambulation. I have universally used the lateral approach and I usually wait five days postoperatively before ambulating the patient. The surgeons who have used the anterior approach find that they can put in these appliances with the detachment of only the posterior attachment of the rectus femoris muscle and they feel that ambulation can be permitted on the day following surgery.

Now, as with all operations, there are certain complications which occur with the insertion of a hip prosthesis. The most common of these is a dislocation of the prosthesis from the acetabulum. I believe this has most commonly occurred in cases in which the anterior approach has been used. With this approach, it is necessary to completely detach the capsule of the hip joint from the trochanteric region and this detachment, I believe, lessens the stability of the head of the prosthesis within the acetabulum. The total sectioning of the capsule has the advantage of sectioning many of the sensory nerves of the hip and probably gives a more pain-free hip. In the lateral approach, only the anterior portion of the capsule is opened and dislocation is a much less common occurrence. An added refinement to this approach is to section the posterior sensory nerves to the hip joint to lessen postoperative pain or discomfort. The posterior approach would

automatically take out the posterior sensory nerves to the hip, leaving the anterior sensory nerves.

CASE PRESENTATIONS

Now, what actually can be offered a patient who has a fractured femoral neck by the use of one of these prostheses? First, if the patient has had the usual so-called "conservative" treatment and the fixation has "gone bad", he may obtain a more rapid return to ambulation by the use of one of the prostheses than can be obtained by the osteotomies. The following are three such cases:

Case No. 1: Patient "C" sustained a fracture of his right hip in March 1954. An open reduction and internal fixation was performed and in May 1954 it was obvious that the nail was being extruded and that there was non-union of the fracture. An Eicher prosthesis was inserted in June 1954. The patient was able to get up and begin walking three weeks after the operation and returned to work about eight weeks after the operation. He is now working as a barber in a local hotel and an x-ray of his hip joint made in August 1955, about fourteen months after the prosthetic insertion shows no arthritic reaction about the acetabulum and no adverse reaction of the bone about the shaft of the prosthesis.

Case No. 2: Patient "M" sustained a fracture of the neck of her left femur in August 1953; it was nailed. Fixation was poor and it was soon obvious that nonunion was impending. An Eicher prosthesis was inserted in September, and the patient began walking two weeks after the insertion of the prosthesis. She is now working as a secretary. I have no recent x-rays on her since she is not a resident of New Orleans. When I last heard from her, which was about one year ago, and two years after the insertion of the prosthesis, she stated she was able to get about and do her work and that she occasionally experienced discomfort in her left thigh.

Case No. 3: Patient "B" sustained a fracture of her left hip in January 1953. An open reduction and internal fixation was performed and this "went bad" with absorption of the neck and extrusion of the nail up through the head, by April of the same year. In May, an Eicher prosthesis was inserted and the patient began walking three weeks after the operation. She was readmitted to the hospital in January 1955, one and a half years after the insertion of the prosthesis, because of a heart attack and x-rays which were made of her hip at that time show no abnormal reaction about the prosthesis.

After their return to ambulation, these patients all had one common question, and that was "Why had the prostheses not been used initially?" It is a very logical question and it sounded rather silly to tell them that they had to have the fracture fixed and then wait until it "went bad" before something could be done which would allow them to return to weight bearing again within a matter of weeks.

This next case demonstrates what can be accomplished in the initial prosthetic treatment of a hip fracture in comparison to the "conservative" internal fixation.

Case No. 4: Patient "L" had had a fracture of the neck of her right femur. An open reduction and internal fixation had been performed and the hip had healed. It took only ten months from the time of injury until she was again able to begin walking. Then, after walking for several months, she fell and broke the neck of her left femur. Needless to say, she was quite depressed at the prospect of spending another ten months in a wheel chair. An Eicher prosthesis was inserted and she began walking five days after the operation. She experienced some breakdown of the subcutaneous fatty tissues and on the eighth day had to go back to bed rest for about five more days. Since that time she has been walking actively. The left leg was initially longer than the right one, but her leg lengths are now equal. She states, at this time, that her hight hip is painful and her left one is not.

Following are case histories in which the appliance was used on recent fractured femoral necks:

Case No. 5: Patient "G" had a fracture of her right hip in June 1955. An Eicher prosthesis was inserted and she has been walking since five days after the date of surgery. This operated leg is longer than the other because of a high insertion of the prosthesis. An x-ray made on her in August of 1955, after she had been walking for two months, showed no abnormal bone reaction about the prosthesis.

Case No. 6: Patient "O" had a fracture of her left hip in June 1955. She came into the hospital in July, after the fracture was six weeks old. An Eicher prosthesis was inserted and she has been walking since five days after the date of operation.

Case No. 7: Patient "H" fell in July 1955, and sustained a fracture of the surgical neck of her left humerus, a compression fracture of the body of the twelfth dorsal vertebra and a fracture of the neck of the left femur. An Eicher prosthesis was inserted. A body brace was obtained and she has been walking since the fifth postoperative day.

What are the surgical complications of

the insertion of a prosthesis? The first complication about which we worry is that of infection and the answer to that is good surgical technique. The second complication is thrombo-phlebitis and its occurrence is certainly no greater in this operation than in any form of treatment of hip fractures. I believe that it is actually lessened by our ability to ambulate these patients in the immediate postoperative period. The next is some discrepancy in leg length. Next is the complaining of a constant dull pain or ache in the hip joint, of a degree which closely parallels the pain of which a number of the so-called "conservatively treated" cases complain.

CONCLUSION

I do not believe that prosthesis should be used in obese or very heavy individuals and, I feel, that young individuals with femoral neck fractures should have their fractures primarily fixed internally.

It so happens that most hip fractures are in the elderly range group, and that very obese individuals do not commonly live long enough to be very aged. In this older group, it has been my experience that the results obtained with initial insertion of a replacement prosthesis are better than those obtained by internal fixation and, in cases which have had internal fixation with an unsatisfactory result, the use of a prosthesis generally gives quicker results than is obtained with an osteotomy.

The majority of the prosthetic appliances which are in use today attempt to reconstruct the normal anatomy of the head and neck of the femur and I note that the more successful appliances are shortening the necks and straightening up the heads so that the forces of weight bearing on the femoral shaft are more those of direct impaction than of a levering side thrust and I believe, in the future, we are going to see these appliances changed still further, so that the head and neck of the appliance will be almost directly in line with the shaft portion of the femur so that a straight line of thrust is obtained downward from the acetabulum onto the shaft of the femur, the angle through the neck being almost entirely eliminated.

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DELUSIONS OF DERMAL PARASITOSIS (ACAROPHOBIA) MANIFESTED BY FOLIE A DEUX

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The current trend toward closer integration of the sundry medical specialties is, we believe, well pointed up in the following case for presentation.

This concerns a mother, aged 71 years, and her daughter, in her thirties, who presented themselves at Charity Hospital in September 1955. They were referred to the dermatology service by the admitting officer with the message that insects were flying in and out of the skins of both. The house physician who initially examined these patients confided to one of the dermatology residents that he had clearly seen an insect fly into the skin of one of these women. In justice to him, it must be said that these individuals were extraordinarily persuasive. They believed fervently, and with utter conviction, that they were both infested with parasites that could be seen and felt. They were in absolute agreement regarding the nature and behaviour of their particular and common infestations. Their demeanor was exceptionally courteous, and their request for assistance, genuine.

The mother was neat, gray haired, and did not look her 71 years. She was rather heavy set with good carriage. She spoke forcefully, surely and quickly. Her body was covered with scars and sores, some of which had become infected. The daughter

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presented a picture of extreme neatness and appeared older than her admitted age. She was thin and rather round shouldered. Much more cautious than her mother in answers to questions, she stated that she did not easily trust people, and further, that she could generally tell what people were thinking by studying them. This, she believed, was due to her father's Indian ancestry, which, though quite remote, additionally endowed her with unusually stoic qualities. She was a proficient seamstress, quite proud of her work. She never wanted to marry, because she was too independent.

The present illness began in the spring of 1955 when the neighbor's cocker spaniel developed sores. This dog, which was their only visitor, would not stay away from their home. Around some of the sores they noted lice. The lice were next observed in their house. One louse bit the daughter and this biting was witnessed by the mother. They immediately had the house fumigated and inspected thereafter by the health department and advised the police and dog catcher of this state of affairs. They then went to their family doctor who had at first treated them sympathetically, but later asserted that they were imagining things about insects. During the following six months they went to 104 doctors, including a veterinarian who diagnosed this as a dog louse infestation with which he was unfamiliar.

During the first interview the daughter vividly described what she called worms, and drew a picture of one. The worm was one-eighth inch long, having two sharp prongs on its head, with an oval shaped, cream colored body and carrying eggs on its back. They were hard, rubbery and not easily killed, for any remaining part was able quickly to regenerate the whole animal and dig deeply into the skin. These worms were extremely tenacious. Even if one were grasped between the fingers, the remaining part of the worm would adhere to the body surface. With traction the entire body would become very rubbery and break after stretching, leaving some portion of the worm adherent to the skin. Both could predict emergence of the parasite from the skin by a warning tingle. They stated that the worms occupied various body orifices. According to the daughter former examinations by physicians were made by digging a plug from the arm and squashing it on a slide, thereby ruining any chance to see the worm. Other mistakes made by physicians included searching for parasites in the wrong areas or at improper times. All of our permitted examinations were also negative for any parasites. Skin biopsies primarily requested by the patient were never permitted when things got to the stage of performance. If other measures failed, the women would and did flee and later return.

They stated they spent hours every night rubbing various ointments and antiseptics on each other and examining and cutting out with a razor any tingling spot on one by the other. The worms were very active at night. The patients slept late in the morning.

The only significant past history was that in 1953 the daughter had a period of hospitalization in Texas for mental illness. The daughter was an only child. After the father's death in 1944 she returned home and remained with her mother. The patients asserted that they lived harmoniously together and that they were fortunate that each could assist the other in removing the worms from areas which would otherwise have been inaccessible. An aunt gave a picture of intense domestic disharmony both before the father's death and at present.

Examination revealed hundreds of grossly mutilated, pinched, excised and excoriated lesions in both, with some secondary infection present in many areas. Slide studies of lesion material were negative. Clinical evaluation by the dermatological staff resulted in the opinion of delusions of dermal parasitosis of the folie à deux variety. These patients would not see a psychiatrist or have a Rorschach examination.

This case report is presented to illustrate a rather unusual occurence. It is by no means unique. Departments of Tropical Medicine and of Dermatology receive letters from time to time, from individuals who are the victims of delusions of parasitosis. Such letters are characterized by certain features: they are rather lengthy, yet neatly written; they plead for assistance in a heart rending fashion; the life cycles, the methods of reproduction, the tenacity of life of the parasites, the details of distribution are all organized in a systematic fashion; they often offer to provide specimens of their selection; and finally they indicate that they have seen a multitude of physicians of little skill and less patience.

An example of one recently received by Tulane University School of Medicine follows:

"Gentlemen:

Some eight months ago I or my wife contracted what has been diagnosed by three doctors, one a dermatologist, as Central American sand fleas, the pregnant female, in other words —if you can make this out from my spelling— dermatialathasis Nautileuas. We have been to our home doctor, County Health officer, two dermatologists, state health officer and upon his request I went to the U. S. Public Health Service Hospital at Lexington, only to be told very harshly that they only treated narcotic addicts and not nuts. We have to our knowledge passed these fleas to no less than six other persons and God knows how many more had them, but what are we to do? No one seems to know what to do and better yet, they seem not to care to learn. Some have advised us they were afraid to have us in their offices. We are neither paupers nor wealthy—I am an electrician—but we owe no one for services. The following had been tried by us extensively: ointment with a coal tar base, ointment with an acid base, ethyl-chloride, mange cure and sulphur with oil or grease base. These scavengers are in everything we have contacted, our furniture, all over our home, in the upholstering of our cars etc., etc. Some of the treatments seemed to bring out the fleas but since no one knew what to fumigate our home etc. with we, of course, again caught them. I find by spraying with ethyl-chloride for some ten minutes on one flea, that even this freezing will not kill them. Some were corked in an air tight bottle for two months to find we had more and yet very much alive. Boiling water will not kill them. One Dr. advised picking out at the point of entry. I tried this. In one small place on my hand I pulled them out all night and believe it or not, the next morning I had more than there were upon starting. I realize this is most probably not the proper channels for help but you must believe me, no one seems to have any interest in our cases and they are serious. My wife had large ulcers on her legs from wounds received in an automobile accident two years ago and these fleas are in these ulcers. I am afraid she may lose both legs if help is not found and very soon too. We are in dire need of knowledge of these things to keep from spreading them further and some way get free of them ourselves. We most certainly don't wish to spread them. Can't you help us? If your answer be in medical terms we can't understand we will carry it to any Dr. you specify.

Please sirs, can't you advise or aid us? If any treatment is known that is successful it seems it will have to come from you. Why no Dr. we have been to doesn't seem to take any interest we can't understand, unless these cases are so rare they just don't care to know anything about them. I beg of you, can't you help us. Any charges we will gladly care for if successful treatment can be found. Also how to exterminate them from our furniture, etc. In advance we are most grateful for any advice.

Very sincerely,
V. J. W.

P.S. I spent three and one half years in the Southwest Pacific in service during World War 2 if this helps."

DISCUSSION

Physiological responses of the skin to psychic and emotional influences are well known. Among these are blushing, blanching, lividity, sweating, and goose flesh. There are, moreover, true dermatoneuroses including neurotic excoriations, trichotillomania, onychotillomania, dermatothlasia, and at times factitial dermatitis. Those most closely allied to delusions of parasitosis are dermatothlasia which is characterized by an uncontrollable desire to rub or scratch repeatedly one or more areas of the skin; and neurotic excoriations, in which condition the individual excavates rather than scratches the skin. These neuroses lack organized delusionary features. When neurotic excoriations are the result of the individual's conviction that parasites infest his skin, the transition has then been made into delusions of dermal parasitosis.

Mutilation is severe when these efforts to remove the infesting organisms become frenzied. According to Wilson and Miller delusions of parasitosis is a symptom complex and not a disease entity. It is not sharply demarcated from other delusions but merges imperceptibly with them. A delusion is a fixed and organized belief or judgement contrary to demonstrable fact. It is merely an unreal, unfounded conviction and lacks the externalized object perception contrary to reality that characterizes the hallucination. The delusion is of great psychiatric significance and frequently accompanies the most profound mental disorders. The prognosis in delusions is poor. They are often part of a paranoid personality pattern.

When the patient perceives something that cannot be perceived by others he is suffering from an hallucination, which is a serious symptom. If this is on a toxic basis, as in alcoholic delirium tremens, the prognosis is good. Dr. Rufus Craig has kindly furnished us with details of such a case in an alcoholic physician.

"Dr. S., age 44, was admitted to the Alcoholic Rehabilitation Service of Charity Hospital following a prolonged, severe, drinking debauch The first night on the Service he developed mild D.T.'s with primarily visual hallucinations, namely green worms crawling up his legs. Even so, the good doctor, whose mind remained steadfast to his scientific training, obtained a specimen bottle from the ward laboratory and caught one of these 'critters' which he placed in the lab. with a note to the extern to please identify it in order that he could receive the proper treatment."

If it is not associated with some reversible toxic or febrile state, the prognosis is, at best, a guarded one.

Phobic patients are those who are unduly afraid. These patients realize that they are not justified in their fears. Phobias can and do affect the skin and are exemplified in the patient whose every skin spot is a malignant, leprous, or luetic affliction. The prognosis is fairly good, not with regard to cure, but toward a successful adjustment, although phobias may at times become disabling. Phobic patients have a persistent fear of contamination. They are, however, able to accept the irrationality of their fears upon presentation of laboratory proof; their intellect accepts what their emotions cannot. It is believed by certain psychoanalysts that phobias indicate greater emotional maturity, hence are more amenable to therapy, than are the delusions.

The obsessive compulsive patient cannot refrain from thinking or acting in a given fixed pattern. These are the perfectionists, whose efforts to rid themselves of small blemishes may result in considerable trauma. They are arrangers, usually of higher than average intelligence, and of more fragile than usual emotions. These patients are well equipped to suffer. Their prognosis is good for containment, but they may develop paranoid states when psychoneurotic drives are not contained.

Delusions of parasitosis almost invariably occur in but one patient at a time. The case and letter herein presented represent instances of folie à deux. Contagious delusions of parasitosis have also been reported by Giacardy and by Wilson and others.[10, 13, 16]

Folie à deux, a term coined by Lasègue and Falret in 1877, is a psychosis shared by two persons. According to Lasègue and Falret the contagion of the folly requires special conditions.

"One of the individuals is the active element; more intelligent than his associate, he creates the illusion and imposes it successively on the second person, who is the passive element. The latter resists at first, then submits little by little to the pressure of his congener, all the while reacting in turn on him, in a certain measure to rectify, amend and coordinate the delusion, which then becomes held in common and which they repeat to all comers, in the same terms and in an almost identical fashion. In order that this intellectual task may be accomplished simultaneously in two different minds, it is necessary that these two individuals have lived, for a long time, a life absolutely in common, in the same place, partaking of the same mode of existence, the same sentiments, the same interests, the same fears and the same hopes, and beyond outside influences. The third condition, in order for the contagion of the delusion to be possible, is that the delusion have the character

of probability; that it be maintained within the limits of possibility; that it rests on past experience, or on fears or hopes conceived for the future. This condition of probability alone permits it to be communicated to an individual and permits the conviction of one to be implanted in the mind of the other."

Gralnik subdivided folie à deux into the imposed, simultaneous, communicated and induced types. In the imposed type the delusions of a psychotic individual are transferred to a mentally sound one, but it is necessary for the persons to be intimately associated and free from counterbalancing influences. The delusions further tend to disappear in the infectee as soon as the two are separated. In the simultaneous type two people morbidly disposed happen to become mentally sick at the same time. Here, too, a long association helps causation, but separation does not clear up either one. This type was originally described by Regis. In the communicated type the psychosis is communicated after some resistance but is fully developed in the second person and does not clear upon separation. This type was originally described by Marandon de Montyel in 1881. The fourth type is the induced variety, first described by Lehman in 1885. In this type the recipient individual already possesses his or her own delusions. There then occurs a numerical addition of delusions from another or primary agent.

Only a small percentage of the cases of folie à deux affect the skin. One of us has observed examples of folie à deux manifested by delusions of intestinal parasitosis. Freyhan states that folie à deux must indeed be a rare condition, since in comparison with the great number of people exposed to others with delusions, only a few acquire them. He further stated that it is likely that a special vulnerability of a recipient is a prerequisite in order that he may become infected psychiatrically. Noyes commented that folie à deux most frequently involves women. This is probably because women are supposed to play passive and submissive roles. Folie à deux commonly involves mother and daughter, two sisters, or husband and wife. As misinterpretations, delusions and ideas of persecution increasingly disturb the infector, they are persuasively and persistently related to the infectee.

MANAGEMENT

Patients presenting themselves to physicians with the conviction that they are the victims of infestations are entitled to thorough physical and laboratory studies. Parasitologists are well aware that mite infestations are readily overlooked by naked eye examinations. To avoid embarrassing postures the clinician requires not only some familiarity with local ectoparasites, but also the use of a magnifying lens.

After it has been decided, following adequate investigation, that no parasites are present, then the problem is a psychiatric one.

In dermatological folie à deux, the treatment is the same as in other cases. The prognosis, while uniformly guarded in these cases, is not to be considered hopeless, as the outlook will entirely depend upon the nature of the basic psychiatric illness of which the delusion is but a symptom. Partridge reported the cure of three people, a case of folie à trois. This cure was accomplished with one operation, a prefrontal lobotomy performed on one individual who was the infector. The other two people as well as the one operated upon were cleared of their delusions. Electroshock therapy has cleared cases of folie à deux.

SUMMARY AND CONCLUSIONS

An example is presented of dermal delusions of parasitosis manifested as folie à deux, in a mother and daughter. Both women were convinced that bizarre worms were infesting their skins; unsuccessful attempts to remove these imaginary creatures led to much mutilation and excoriation. They saw 104 physicians, in a six month period. Delusions of parasitosis is a symptom complex which merges imperceptibly into other delusions. It is of serious psychiatric implication. Folie à deux is a psychosis shared by two persons. The

combination of these two psychiatric conditions is unusual but has been previously reported by Giacardy and by Wilson. Patients presenting themselves to physicians with the conviction that they are the victims of infestations are entitled to thorough physical and laboratory examinations. When it has been established that no parasites are present, the problem is a psychiatric one.

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B. FOLIE A DEUX

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DISCUSSION

Dr. John D. Krafchuk, New Orleans: Dr. McAndrew is to be commended for his authoritative presentation of a topic for which he is so eminently qualified, with advanced training and experience in both Dermatology and Psychiatry, a rare and very useful combination.

The interrelationship between diseases and functions of different systems of the body is coming to be recognized and appreciated more and more as medical knowledge increases. With internal organs of the body, the influence of one system upon another may be somewhat obscured by the inaccessability of organs involved. The position of the skin, one of the largest organs of the body, on the surface, readily examined and biopsied, has lead to recognition of the significance of a number of cutaneous manifestations of internal disease, such as acanthosis nigricans for internal malignancy, and erythema nodosum for certain internal infections. Dr. McAndrews' presentation demonstrates a primary disease of the central nervous system presented for medical care because of skin lesions. In these psychotic patients, no therapy to the skin is of any avail; the only hope for these patients lies in the correction of the basic psychosis.

The relationship between functional activity of the nervous system and the skin is very close. The nonmedical person is acquainted with such emotional reactions as blushing, sweating, pallor. A number of commonly seen chronic dermatoses, such as psoriasis, eczema, and lichen planus, have well recognized psychic components, although the emotional factors are felt to serve as aggravating factors rather than actual cause. In these conditions, treatment by the dermatologist may have an inherent measure of psychotherapy, by inspiring confidence and the assurance that the condition will get well.

The type of case presented by Dr. McAndrews, however, presents a distinct problem. The patients described are basically psychotic, the skin lesions serving only as indications of the underlying mental state of the patient. Local or systemic treatment directed toward the skin serves no purpose other, perhaps, than control of secondary infection. It is very difficult to convince these patients of the true nature of the condition. In fact, it may be well not to attempt to, since, being basically psychotic, they might direct their abnormal behavior in other more dangerous directions. A case is known where the patient, finally convinced after great effort that his skin disease was self produced, went off and committed suicide.

A recent paper by Aleshire in the May 15 1954, issue of the **Journal of the American Medical Association**, describes four patients with delusions of parasitosis who had histories of poor nutrition. High vitamin and protein diets corrected the psychic abnormalities, and the delusions of parasitosis disappeared. While nutritional factors may not apply to all cases with acarophobia, it is worthy of consideration where the mental disease might be on a toxic or subnutritional basis.

A point made by Dr. McAndrew might be emphasized—that it is important to make certain that there actually are no insects in a given case, even though the neuropsychiatric aspects of the case seem convincing. A true story recently heard at a Dermatology meeting illustrates this point. A social worker for a large psychiatric department noted recurrent severe urticaria, felt to be basically a neuropsychiatric problem, since eruptions routinely followed arguments with her fiancé. The dermatologist, who had been asked to prescribe an anti-pruritic lotion for symptomatic effect, while she was being treated psychiatrically, insisted on examin-

ing the patient against strong objections. He diagnosed the lesions as insect bites. Investigation then showed that there were bed bugs in the bed of the young lady, and that she slept at her own apartment only during the periods when she and her fiancé were not on speaking terms after arguments. Elimination of the bedbugs quickly solved the psychiatric problem.

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CESAREAN SECTIONS: A REVIEW OF ONE THOUSAND CASES IN A PRIVATE HOSPITAL*

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This is a study of 1000 consecutive cesarean sections performed in the Southern Baptist Hospital, New Orleans, from January 1st, 1951, through January 7th, 1955. During this time there were a total of 14,891 deliveries. A breakdown as to the yearly incidence and indications will be shown and an analysis of incidence, morbidity, indications and neonatal and stillborn mortality will be included. As is frequently the case, the cause of morbidity is not always easy to determine. In a series we find frequent cases in which patients fit the classification of morbidity, but there are no known causes that appear in the chart. Since cesarean section is a major abdominal procedure, often performed on a patient physically exhausted from a prolonged trial of labor, or suffering from an acute anemia due to hemorrhage or severe pre-eclampsia, it is no wonder that morbidity is frequent.

INCREASE IN INCIDENCE

A review of the literature on cesarean sections showed that all authors have noted a steady increase in incidence. Broadening of indications for cesarean section have brought about a decrease in fetal and maternal mortality. The claims are that this changing attitude appears to coincide with the availability of chemotherapy, antibiotics, and blood banks. Another change has been the greater increase in the incidence of cesarean sections among private patients as compared with charity patients. Studiford and Decker[1] state that with the increased safety of the operation, it is natural to expect the greater frequency with which it is being utilized at the present time and broadening of the indications for its performance. Today, we find the fetal indications are greatly extended, with a growing tendency to supplant the more difficult type of vaginal operation with a cesarean section. In addition, it is being used to terminate pregnancies in which serious complications exist, in the interest of the mother, rather than the fetus.

Prematurity plays a large role in the higher fetal mortality rate in section because of severe maternal complications appearing well before term. A comparison of the fetal mortality rate in high and mid-forceps in Kistner's[2] report, as compared with that of cesarean sections, reveals that it has been much safer for the infant to have been delivered abdominally than by difficult operative forceps. It seems that the factors which make the operation safer, as listed by Conti,[3] that is, better technique, better anesthesia, antibiotics, blood transfusions, etc. will permit an increased period of delay before operation, and in some cases avoiding it entirely. This will, in some measure, prevent a too rapid rise in incidence. A high cesarean section rate is indicative of a lack of obstetrical art, or a disregard of the patient's future obstetric well-being. The subsequent rupture of a cesarean scar may not be included in the operator's statistics, but should certainly be his responsibility.

TABLE 1
INCIDENCE

Total deliveries	14,891
Total sections	1,000
Incidence	6.71%

In 1951, there were 237 sections, or an incidence of 7.02 per cent. In 1952, there were 215 sections, 6.05 per cent; 1953, 259 sections, 6.76 per cent, while in 1954, there were 287 or an incidence of 7.02 per cent. There has been a steady increase in the number of sections, but the incidence has

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society Alexandria, April 25, 1956.

remained fairly constant due to the increase in deliveries.

This compares favorably with another private hospital in New Orleans, Touro Infirmary. Meyer[4] reports an incidence of 9.2 per cent for 1,290 sections from 1949 to 1955.

TABLE 2
TYPE OF SECTION

Low cervical	885
Classical	65
Section hysterectomy	40
Extra peritoneal	10

As Table 2 shows, the tendency is predominantly for the low flap procedure. There is but little variation in the percent of the other procedures from year to year, with the exception of the extra peritoneal section (2 were performed in 1952, and 8 in 1954).

In conjunction with the 1000 cesarean sections, there were 181 sterilization procedures, including 40 hysterectomies.

TABLE 3
ANESTHESIA

Spinal	930
Ethylene-ether	33
Cyclopropane	30
Local (Novocaine)	7

With 93 per cent of the sections being performed under spinal anesthesia, one can see that spinals are no longer feared in obstetrics. This is due to several factors: improvement in anesthetic agents, qualified anesthesiologist, intravenous fluids, blood, stimulants and hypotensive agents.

TABLE 4
INDICATIONS

Previous section	509
Disproportion	213
Abruptio placentae	71
Placentae praevia	57
Cervical dystocia and uterine inertia	47
Elderly primipara	43
Pre-eclampsia	43
Transverse lie	24
Poor obstetrical history	18
Face and brow presentation	11
Miscellaneous	53

Of the 1000 sections reviewed, 509 or about 50 per cent were performed because of previous sections. The liberalization of indications for sections in recent years, therefore, is a contributing factor in the high incidence of sections at present. As regards the practice of allowing previous section cases to deliver vaginally in subsequent pregnancies, i.e., hemorrhage or malposition; in this series there were 6 ruptured uteri and 9 impending ruptures, a total of 15 partial, incomplete or complete ruptures of the uterus in 509 previous section cases, or approximately a 3 per cent incidence.

There was no maternal mortality in this series, though several of the cases of ruptured uteri were saved only by the modern era of good anesthesia, antibiotics, and blood banks. One patient experienced sudden, severe pain at home and within forty-five minutes was in the operating room receiving four blood transfusions simultaneously.

Indications for primary sections were: first, disproportion followed by abruptio placentae and placentae praevia; next in frequency were cervical dystocia and uterine inertia, elderly primipara and pre-eclampsia. These are the relative indications for section that are most frequently mentioned. Ofttimes one will find all three as indications in the same patient, i.e., a 36 year old primipara, thirteen years' sterility, pre-eclamptic with ruptured membranes; pitocin enhancement followed by secondary inertia and section.

TABLE 5
MISCELLANEOUS INDICATIONS

Bony pelvic distortion	9
Fetal distress	7
Ruptured uterus	6
Previous uterine surgery	6
Obstructing pelvic mass	5
Double uterus and/or vagina	5
Heart disease—Valvular or congenital	4
Prolapsed cord	3
Previous extensive vaginal plastic	3
Cervical stenosis or conglutination	3
Cerebral hemorrhage	1
Spinal cord tumor with paralysis	1

Under bony pelvic distortion were those due to previous fractures of the pelvis, to poliomyelitis as a child, osteitis imperfecta and one bone cyst of the pubis. The orthopedist feared a vaginal delivery would re-

sult in fracture of the pubis.

Previous uterine surgery consisted of myomectomies and hysterotomies. The obstructing pelvic masses consisted of cervical fibroids, ovarian cysts and a pelvic kidney. The sections for prolapsed cord all resulted in living babies.

TABLE 6
INCIDENTAL PROCEDURES

Tubal ligation	136
Myomectomy	12
Appendectomy	9
Salpingectomy	5
Hernia repair (umbilical)	4
Repair of bladder rent	3
Ovarian surgery	2
Uterine suspension	1
Breast surgery	1

These procedures were all performed in conjunction with, or at the time of, the cesarean section. To these may be added the 40 hysterectomies, though it is difficult to classify a hysterectomy as an incidental procedure.

The bladder lacerations were all discovered at the time and repaired without complications, other than cystitis. Two of these occurred during low cervical section, and the third during a total hysterectomy at the time of the third section. The breast surgery consisted of the wedge excision of a breast mass that on frozen section was diagnosed as an adenofibroma.

Maternal morbidity rates have been appreciably reduced in recent years. The rate for the 1,000 cases under study was 15.5 per cent—a total of 155 cases (19 per cent in 1951 to 10.4 per cent in 1954). This is an especially good result when compared with one recent study of 1,000 major gynecological operations, reported by Sellers, Ward and Davis[5] with a morbidity of 23 per cent. Again, credit for the improved statistics must be given to intelligent use of anesthetic drugs, prinsipally spinal anesthesia, adequate use of antibiotics and chemotherapy, frequently prophylactically, and blood replacement. Good prenatal care brings the majority of patients to the hospital in better physical condition than is usually encountered in a charitable institution.

Bryant,[6] in reporting on sections in Cincinnati, compared two groups of elective sections, one with prophylactic antibiotics, the other without. The incidence of morbidity varied 1.2 per cent in the two groups.

TABLE 7
FETAL MORTALITY

Total number of births (including 15 twins)	1015
Neonatal deaths	28
Stillborn	33
Gross fetal mortality	6.0%

Of the neonatal deaths, 10 were in association with praevia and abruptio, and 9 were prematures; while 20 of the stillborns occurred with praevia and abruptio, and only 6 were premature. Three of the stillborns were due to ruptured uteri.

With the increased incidence of sections, there is a decreased fetal mortality. Broadening the indications for section to include fetal indication, such as prolapsed cord, fetal distress, and supplanting the more difficult and hazardous types of vaginal deliveries with section have definitely lowered fetal mortality. The one factor that needs more help is the avoidance of prematurity. This is usually not preventable in the bleeding cases, although in labor they have had indications for section, but too many premature infants are delivered electively because of previous sections. This is why we need the continuation of consultations for previous sections, with the consultant examining the patient for fetal size and not depending on the EDC calculated from a woman's hazy memory of the date of her last menstrual period.

Although no attempt was made to tabulate the number of primary sections performed electively, without the patient having a trial of labor; one feels that too often, too great a dependence has been placed on x-ray pelvimetry. This refers specifically to cephalopelvic disproportion without trial of labor. Clinical evaluation, competent consultation and adequate trial of labor will result frequently in a normal vaginal delivery of a normal, healthy infant and prevent adding a scar to the

uterus and making a needless 'obstetrical cripple'!

Likewise, I am not advocating a return to the less than 1 per cent section incidence that could result in some infants being dragged through disproportionate pelves and cause extensive soft tissue damage to the maternal pelvis and brain damage to the infant.

SUMMARY

A review of 1,000 consecutive cesarean sections in a private hospital has been presented.

There was a section incidence of 6.71 per cent.

The low cervical type section was predominant with a decrease in classical sections and the section hysterectomies show an increase, as some surgeons are removing the uterus rather than ligating the Fallopian tubes when sterilization is indicated.

Slightly more than 50 per cent of the sections were secondary or repeat sections.

Fetopelvic disproportion, abruptio placenta, and placentae praevia were the three most frequent reasons for primary section.

There has been an increase in incidental surgical procedures performed at the time of cesarean section.

The fetal mortality (uncorrected) was 6.0 per cent.

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THE EVALUATION OF STREPTOHYDRAZIDE* IN THE TREATMENT OF PULMONARY TUBERCULOSIS †

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NEW ORLEANS

Streptohydrazide is a crystalline compound containing the equivalent of 1 gm. of streptomycin base and 236 mg. of izoniazid. Following the injection intramuscularly, concentrations [1] in the blood are similar to those following injection of 1 gm. of streptomycin, and satisfactory serum concentrations of izoniazid are also reported. Hobby [2] and Lenert have reported therapeutic effects in animals when given intermittently. Oral medications, in some instances, are not tolerated and the regulated dosage of the two most beneficial medications by injection are of distinct value.

Patients admitted to the L.S.U. Tuberculosis Service at Charity Hospital in New Orleans beginning February 4, 1954, were placed by rotation in one of the eight following protocols:

I. INH 300 mg./day plus PAS 12 gms. /day.

II. Streptomycin gms. 1/day x 30; then b.i.w. plus PAS 12 gms./day plus INH 300 mg./day.

III. Streptomycin, gms. 1/day x 30; then b.i.w. plus INH 300 mg./day.

IV. Streptomycin gms. 1/day x 30; then b.i.w. plus PAS 12 gms./day

V. Streptohydrazide gms. 1/b.i.w.

VI. Streptohydrazide gms. 1/day x 30; then b.i.w.

VII. Streptohydrazide gms. 1/day x 30; then b.i.w. plus PAS 12 gms./day

VIII. Streptohydrazide gms. 1/day x 30; then b.i.w. plus INH 300 mg./day

Routine laboratory work, consisting of blood count, sedimentation rate, urinalysis, blood urea nitrogen, icterus index were done every two months; seventy-two hour sputa concentrations and cultures were done on all patients every month. Routine 14 by 17 EPA chest x-rays, including other indicated views, were obtained at monthly and two month intervals.

Weight, cough, laboratory, x-ray and toxic manifestations were noted and ana-

* Supplied by Charles Pfizer, Co., to the L.S.U. Tuberculosis Service, Charity Hospital, New Orleans, Louisiana.

† Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society at Alexandria, Louisiana, April 25, 1956.

lyzed as per tables 1 to 9.

OBSERVATIONS

Toxic Manifestations. — Nausea, diarrhea, dizziness, flushing, chills, fever, headache, hysteria, depression, pruritus, rash, palpitation, hematuria and joint pains occurred. Izoniazid had to be discontinued in 2 patients because of depression and nausea.

Streptomycin had to be discontinued in 4 instances because of: Nervous reaction, dizziness, rash and pruritus, and chills

TABLE 1
I.N.H. & P.A.S. — 12 PATIENTS

Weight	12 (86%) Gained 6 - 14 lbs.	Stationary 2	Loss 0
Cough	14 (100%) Decreased		
Laboratory	Urine: No abnormalities Sed. rate: 2 - 56 Icterus index: 4 - 37 (no clinical jaundice)		B.U.N.: 9 - 18 Hematocrit: 33 - 46
Sputum	8 (80%) Converted 4 - 8 weeks	Positive 2	Negative 4
X-ray	6 Cavities: 4 (66%) Disappeared 10 - 24 weeks 6 Clearing & contraction 2 Unchanged: 1 Oleothorax		2 Unchanged 1 Cystic bronchiectasis
Toxicity	1 Dizziness, hysteria, nausea and pruritus 1 Rash and pruritus		

TABLE 2
STREPTOMYCIN, P.A.S. & I.N.H. — 12 PATIENTS

Weight	11 (91%) Gained 9 - 55 lbs.		Expired 1
Cough	9 (75%) Decreased	Stationary 3	Increased 0
Laboratory	Urine: No abnormalities Sed. rate: 35 - 45 Icterus index: 3.8 - 28 (no clinical jaundice)		B.U.N.: 5 - 25 Hematocrit: 24 - 49
Sputum	10 (83%) Converted 6 - 12 weeks		Positive 2
X-ray	9 Cavities: 4 (44%) Disappeared 8 - 12 weeks 1 Plombage 1 Lobectomy 2 Nodular cystic 1 Expired 3 Clearing and contraction		
Toxicity	1 Depression and nausea - I.N.H. stopped after 8 weeks 1 Jumped from 4th floor window - still lives		

TABLE 3
STREPTOMYCIN & I.N.H. — 10 PATIENTS

Weight	10 (100%) Gained 4 - 21 pounds		
Cough	9 (90%) Decreased	Stationary 1	Increased 0
Laboratory	Urine: 1 Diabetic controlled Sed. rate: 6 - 50 Icterus index: 6.5 - 33 (no clinical jaundice)		B.U.N.: 8.2 - 19 Hematocrit: 34 - 52
Sputum	7 (78%) Converted 3 - 22 weeks	Positive 2	Negative 1 (Pott's)
X-ray	2 Cavities: 1 Segmental resection 7 Clearing and contraction 1 Pott's		1 Contraction
Toxicity	1 Rash and pruritus (controlled with benadryl) 1 Dizziness; streptomycin stopped & P.A.S. substituted		

and fever (streptohydrazide and INH substituted in 1 instance without return of symptoms). Streptohydrazide had to be discontinued in 3 instances because of tingling after 60 gms., vertigo 39 gms., and transfer of patient to mental hospital. PAS had to be discontinued in 3 instances because of nausea, chills and fever, and nausea and diarrhea. One patient could tolerate none of the anti-tuberculosis drugs used.

Deaths.—

1) Multiple abcesses; sputum converted
1) Addison's disease

Laboratory Studies.—

Sputa studies revealed conversions by culture in 50 to 91 per cent. There was little difference in the first 4 protocols

TABLE 4
STREPTOMYCIN & P.A.S. — 10 PATIENTS

Weight	8 (80%) Gained 7 - 34 pounds	Stationary 1	Unable to weigh 1
Cough	8 (80%) Decreased	Stationary 2	Increased 0
Laboratory	Urine: No abnormalities Sed. rate: 22 - 62 Icterus index: 3.1 - 26.7 (No clinical jaundice)		B.U.N.: 5 - 21.2 Hematocrit: 33 - 46
Sputum	7 (78%) Converted 4 - 16 weeks	Positive 2	Negative 1 (effusion)
X-ray	5 Cavities: 3 Decreased in size; 2 lobectomies 4 Contraction and clearing 1 Stationary		
Toxicity	1 Nausea; P.A.S. discontinued & I.N.H. substituted 1 Rash and pruritus; streptomycin discontinued & I.N.H. substituted 1 Chills and fever; streptohydrazine & I.N.H. substituted		

TABLE 5
STREPTOHYDRAZIDE GMS. 1 B.I.W. — 10 PATIENTS

Weight	9 (90%) Gained 2 - 31 pounds	Stationary 1	
Cough	7 (70%) Decreased	Stationary 3	Increased 0
Laboratory	Urine: No abnormalities Sed. rate: 14 - 55 Icterus index: 4.9 - 37 (no clinical jaundice)		B.U.N.: 7.4 - 25 Hematocrit: 33 - 51
Sputum	5 (50%) Converted 5 - 22 weeks	Positive 5	
X-ray	8 Cavities: 3 (38%) Disappeared (6, 11, & 12 months) 2 Unchanged		5 Decreased
Toxicity	1 Depression, excitation (stabbed patient)		

TABLE 6
STREPTOHYDRAZIDE GMS. 1/D x 30, THEN B.I.W. — 15 PATIENTS

Weight	12 (80%) Gained 5 - 40 pounds	Loss 2	Expired 1
Cough	15 (100%) Decreased		
Laboratory	Urine: 1 Diabetic controlled Sed. rate: 36 - 50 Icterus index: 4.5 - 26.4 (no clinical jaundice)		B.U.N.: 6 - 25.6 Hematocrit: 30 - 52
Sputum	8 (57%) Converted 4 - 52 weeks	Positive 6	Negative 1
X-ray	8 Cavities: 3 (37½%) Disappeared (4, 12, & 52 weeks) 6 Stationary 1 Expired		5 Unchanged
Toxicity	1 Vertigo 1 Tingling		

TABLE 7
STREPTOHYDRAZIDE GMS. 1/D x 30 THEN B.I.W. & P.A.S. — 12 PATIENTS

Weight	9 (75%) Gained 4 - 23 pounds	Stationary 2	Loss 1
Cough	8 (66%) Decreased	Stationary 4	
Laboratory	Urine: 1 Hematuria reaction to all chemotherapy Sed. rate: 28 - 56 Icterus index: 5 - 27.2 (no clinical jaundice)	B.U.N.: 5 - 27.6 Hematocrit: 29 - 61	
Sputum	7 (58%) Converted 5 - 25 weeks	Positive 5	Negative 2
X-ray	9 Cavities: 4 (44%) Disappeared 5 - 25 weeks 5 Clearing and contraction 2 Worsening 1 Clearing and contraction		
Toxicity	1 Headache and flushing 1 Vertigo 1 Chills, fever, palpitation and hematuria 1 Nausea, diarrhea; P.A.S. discontinued		

TABLE 8
STREPTOHYDRAZIDE GMS. 1/ x 30 THEN B.I.W. & I.N.H. — 13 PATIENTS

Weight	12 (92%) Gained 8 - 50 pounds	Stationary 1	
Cough	13 (100%) Decreased		
Laboratory	Urine: 1 Diabetic controlled Sed. rate: 13 - 52 Icterus index: 4.1 - 22.2 (no clinical jaundice)	B.U.N.: 7.4 - 20.2 Hematocrit: 32 - 50	
Sputum	10 (91%) Converted 4 - 16 weeks	Positive 1	Negative 2
X-ray	5 Cavities: 2 (40%) Disappeared 10 - 22 weeks 3 Contracted 2 Cystic 6 Clearing and contraction		
Toxicity	1 Joint pain, depressive reaction 1 Febrile reaction		

TABLE 9

	1 14 Pts.	2 12 Pts.	3 10 Pts.	4 10 Pts.	5 10 Pts.	6 15 Pts.	7 12 Pts.	8 13 Pts.
Weight Gain	12 (86%) 6 - 14	11 (91%) 9 - 55	10 (100%) 4 - 21	8 (80%) 7 - 34	9 (90%) 2 - 31	12 (80%) 5 - 40	9 (75%) 4 - 23	12 (92%) 8 - 50
Cough Decreased	14 (100%)	9 (75%)	9 (90%)	8 (80%)	7 (70%)	15 (100%)	8 (66%)	13 (100%)
Sputum Conversion	8 (80%) 4 - 8	10 (83%) 6 - 12	7 (78%) 3 - 22	7 (78%) 4 - 16	5 (50%) 5 - 22	8 (57%) 4 - 52	7 (58%) 5 - 25	10 (91%) 4 - 16
Positive	2	2	2	2	5	6	5	1
Negative	4	0	1	1	0	1	2	2
X-ray								
Cavities	6	9	2	5	8	8	9	5
Closed	4 (66%)	4 (44%)	0	0	3 (38%)	3 (37½%)	4 (44%)	2 (40%)
Toxicity								
Skin	2	0	1	1	0	0	0	0
Nerve	1	2	1	0	1	1	2	1
G. I.	1	1	0	1	0	0	1	0
Febrile	0	0	0	1	0	0	1	1

78 to 83 per cent, the greatest being in the last 4, 50 to 91 per cent. The reason for the difference is not known, as sensitivity studies were not done.

Routine blood counts failed to reveal evidence of abnormalities caused by any of the medications used.

The sedimentation rate proved of no value in our analysis.

The icterus index was unreliable. No clinical jaundice was noted in spite of the high values. Some of the specimens were hemolyzed, giving high values.

The blood urea nitrogen proved of no value in our analysis.

Hematuria was observed in only 1 instance where all medications were not tolerated. Transient traces of albumin were noted in 5 instances. Pyuria was noted once, and cleared spontaneously. Trace of sugar was noted in 3 instances; all cleared on re-examination. Three diabetics were controlled with the usual diabetic regime.

X-ray Changes.—

X-ray changes were also interesting in that the highest percentage of cavity closures, 67 per cent, was in the *INH & PAS group.* When all three drugs were administered there was 44 per cent closure similar to the streptohydrazide & PAS group. With streptomycin plus INH and streptomycin plus PAS no cavity closures occurred; whereas with streptohydrazide twice weekly and streptohydrazide daily for thirty days then twice weekly, cavity closure was identical, 38 per cent. Streptohydrazide daily for thirty days then twice weekly plus INH group showed a 40 per cent cavity closure.

SUMMARY

1. Streptohydrazide intermittently and in combination with PAS and INH has been compared with protocols using combinations of streptomycin, INH and PAS. Our findings suggest that its use is at least equal to the other combinations except INH & PAS, which proved to be the best protocol.

2. Toxic signs and symptoms were no more frequent than in the other protocols.

3. In certain instances where oral medication is not feasible, or when symptoms necessitate discontinuance, also, we have found that in certain instances the claim is made that the medication has been taken orally; whereas upon close checking there was no medication dispensed or taken, the injectable combination offers a definite advantage.

4. Other than INH and PAS, which proved the best protocol, there was little to differentiate the other seven protocols.

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THE USE AND MISUSE OF NEEDLE BIOPSY IN THE DIAGNOSIS OF MALIGNANT DISEASE *

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NEW ORLEANS

Needle biopsy has long been advocated as a valuable aid in the diagnosis of malignant disease. It also has been condemned as a dangerous and harmful procedure. At present, needle biopsy is gaining widespread use and it is our purpose to call attention to sites where this technique is suitable and safe, and to point out where the method is unsatisfactory based on reports in the literature and observations made on the Tulane Surgical Service at Charity Hospital.

Hannover,[13] the Danish pathologist was one of the first to use diagnostic surgical biopsies prior to the middle of the last century. Bouisson,[1] Professor of Surgery at Montpellier, biopsied ulcerating lesions for study in 1845. Histologic examination

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of curetted material from the uterus was advised by Kiwisch [16] in 1847. In 1851, Schuh [31] used the microscope in the study of certain surgical conditions.

The use of a needle to obtain tissue for diagnosis became popular almost as soon as any type of biopsy was performed. As in a number of procedures developed for medical use, needle biopsy probably was separately discovered and utilized by many more physicians than those who actually made formal reports on its use. Sedillot [1] at Paris in 1846, using needle puncture in the exploration of tumors with an instrument similar to a grooved director, obtained bits of tissue for microscopic examination. Kuss,[1] at Strasburg in 1846, devised a cannula with a harpoon-like stylet to capture tiny pieces of tumor for study. Bouisson,[1] in 1852, reported on the use of needle biopsy for diagnosis in malignant disease. Wintrich,[42] also in 1852, reported on this type of procedure for the diagnosis of breast lesions.

The first American report occurred in the *Transactions of the American Surgical Association*, in 1889, when J. Collins Warren [41] of Boston reported a cannula-like punch biopsy needle for use in the early diagnosis of cancer. The needle was designed by Dr. S. J. Mixter and had been used in over 100 cases at the time of the report.

Dr. Nicholas Senn,[33] Professor of Surgery at Rush Medical College, in his book *The Pathology and Treatment of Tumors*, published in 1895, described the use of aspiration biopsy. Dr. Senn called attention to the fact that "only specimens which represented both cells and stroma in their proper relations" enabled the microscopist to interpret the character of the tumor. Dr. Senn also pointed out that other workers, Bruns and Middledorpf in addition to those mentioned above, had devised trocars for the purpose of removing particles of tumor tissue for microscopic examination. Ward,[39] in 1914, used needle biopsy to study cellular material obtained from lymph nodes in patients with lymphoblastoma. In 1921, Guthrie [11] employed needle biopsy in the study of Hodgkin's disease.

Modern use, however, dates from 1930 when Martin and Ellis[18, 19] reported on a simple method of needle biopsy from Memorial Hospital at New York City. Subsequent reports on needle biopsy have pointed out extensive utilization of the procedure and have indicated its merits and the dangers encountered.

TECHNIQUE

The needle that we find most satisfactory for general use is the Vim-Silverman biopsy needle. (Fig. 1) This needle comes in lengths of 6 centimeters and 8.5 centimeters, the outer sheath is 14 gauge, and the inner stylet is 17 gauge. We prefer to use the shorter needle where possible, but with deep-seated tumors, the longer needle is necessary. The technique used consists of raising a small bleb in the skin overlying the tumor with 1 per cent procaine. The underlying tissue between the skin and the neoplasm is similarly infiltrated with care being taken to avoid injecting the tumor. Actually, very little pain is encountered in obtaining the biopsy specimen. A stab wound large enough to admit the needle is made with a bistoury knife (No. 11 Bard-Parker blade) through the skin bleb. The needle with its stylet in place is introduced and advanced to the edge of the tumor. The stylet is removed and the split blade obturator is inserted through the cannula into the mass for a distance of 1 to 2 centimeters. The cannula is advanced over the obturator with a rotary movement until the obturator is enclosed. The cannula and obturator are then both rotated 180 degrees in unison and withdrawn together. A core of tumor is generally found between the blades sufficient to make a satisfactory microscopic diagnosis. Occasionally, a second attempt will have to be made to obtain the required tissue.

The technique recommended by Martin[18] is even more simple and consists of using a sharp 18 gauge needle which is attached to a tightly fitting syringe. Using a similar technique to that mentioned above, the needle is advanced to the tumor, and then with the piston of the syringe partially withdrawn to produce a vacuum, the nee-

dle is introduced into the neoplasm and advanced and withdrawn several times. The material obtained in the needle is expressed onto a slide and smeared and fixed. Should any larger fragments be present, these are saved for paraffin sections. A quick staining method is used on the smeared material obtained from the

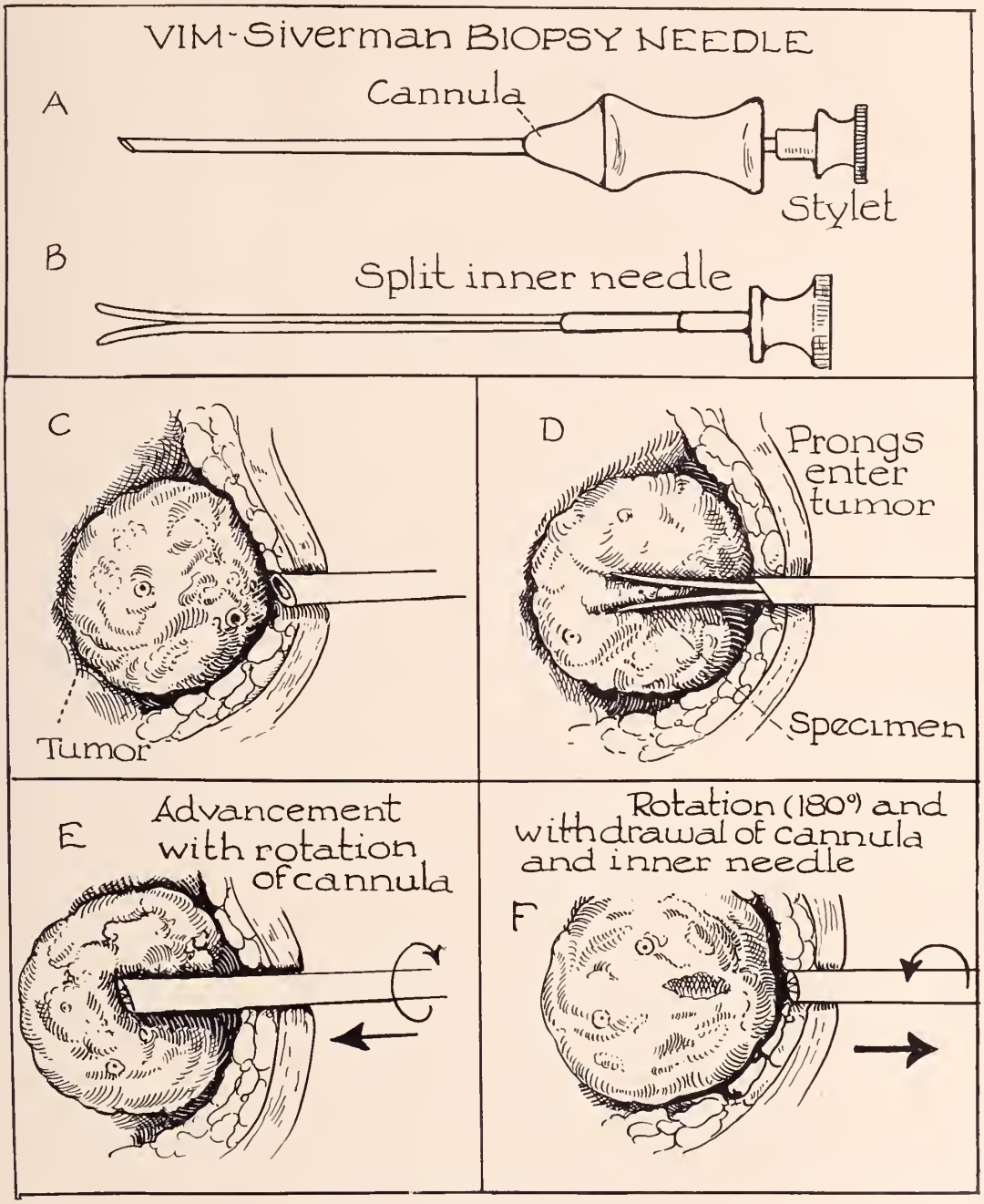


Figure 1

A. Vim-Silverman biopsy needle with stylet.
B. Split bladed inner needle.
C. The cannula with stylet in place is advanced to the tumor.
D. The stylet is replaced with the inner needle which is inserted into the mass.
E. The cannula is advanced over the inner needle.
F. Needle and cannula are rotated 180° and withdrawn with the specimen.

tumor, and the diagnosis may be made on the appearance of the cells. We generally find it more satisfactory to obtain a fragment of tissue for paraffin section and routine hematoxin and eosin stain. It is extremely important to have sufficient specimen to demonstrate the relation of the malignant cells to their stroma, and while an impression made on cytological study is highly suggestive, it should not be accepted as the final diagnosis.

A third technique utilizes the Turkel[36] needle which consists of an outer 12 gauge needle with a 14 gauge spear-pointed stylet. This needle with the stylet in place is introduced through the skin and soft tissues until the tumor is approximated. The stylet is removed and an inner needle is inserted which consists of a hollow obturator with a serrated edge that cuts tissue when turned in a clockwise direction. When the cutting obturator is in contact with the tumor, it is advanced with a clockwise rotation until the desired amount of tissue is obtained. A syringe is then attached to the obturator; gentle suction is produced, and the needle is removed with the specimen held in the obturator. This needle, originally designed for sternal punctures, has received considerable attention and modifications are now available for use in biopsying bone, liver, prostate, breast, and soft tissue masses.[30, 36] (Figure 2)

There is a fourth type of needle described by Semple[32] which utilizes the tissue-holding action of a harpoon with

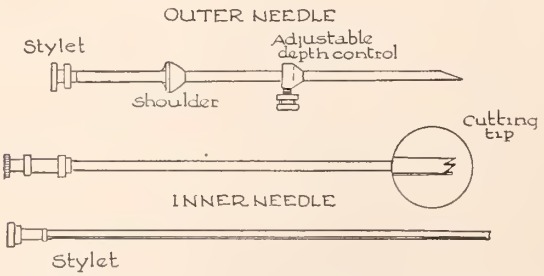


Figure 2—The Turkel needle consists of an outer needle with a cutting stylet (partially inserted as depicted above) and an inner needle with a serrated cutting tip. The latter has a stylet to protect teeth and push specimen out of the needle. (Modified after — Trephine Instruments, Inc. Catalog)

the cutting action of a trephine. The trephine is introduced with a pointed stylet in place. This is then advanced to the tumor; the stylet is removed, and a harpoon-like needle is passed down the trephine into the mass. The harpoon is then withdrawn slightly. This compresses the tissue on the edge of the trephine which by a rotary cutting action frees a fragment of tumor which is withdrawn with the entire instrument. (Figure 3)

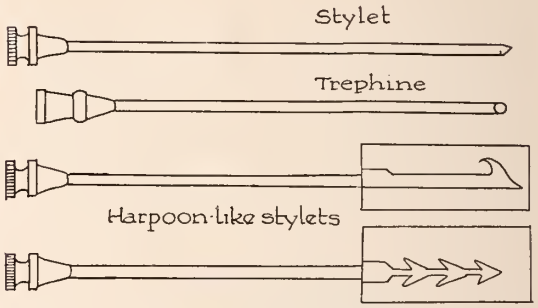


Figure 3—Harpoon biopsy needle consists of trephine with the pointed stylet which is advanced to the tumor. The cutting stylet is replaced with a harpoon-like stylet and this is inserted into the tumor. The harpoon is withdrawn slightly compressing the tissue against the trephine which by a rotary cutting action frees the specimen. (Modified after J. E. Semple, M. D., British Med J., June, 1951).[32]

Occasionally on attempting to aspirate a tumor one will find a cyst filled with fluid or an abscess with purulent material. The cyst fluid should be removed for cell block studies and pus obtained should be held for culture or other diagnostic studies that are indicated.

There are a number of limitations which apply to needle biopsy that apply to all types of biopsies. One problem consists of obtaining an adequate and representative specimen, and even with an open biopsy it is sometimes difficult to obtain the portion of tissue that will give the correct diagnosis. The needle biopsy is particullarly subject to failures from this point of view and may be on the basis of technical or operative difficulties. The removal of a portion of the tumor which contains none of the diagnostic cells is, of course, of no aid and may be misleading in providing false information.

Another difficulty with needle biopsy is that the tumor must be controlled or immobilized with one's hand as the needle is being introduced. Depending on the consistency of the tumor and the sharpness of the needle, this requires more or less manipulation of the neoplasm, which is to be avoided or kept at a minimum, as will be indicated subsequently.

Some of the other dangers that follow needle biopsy consist of: (1) infections occurring in the wound, (2) hemorrhage from friable vessels encountered in the tumor, and (3) injury to vital organs, nerves or blood vessels closely associated with the neoplasm. Careful technique, skill, and judgement will limit the extent of these complications.

Another difficulty to be feared is ulceration of the skin over the tumor allowing a fungating mass to appear, particularly if the underlying tumor is under any pressure. This danger is more prevalent with incisional biopsy than with needle biopsy and in some instances needle biopsy may be elected in an attempt to prevent fungation.

The most feared complication from biopsy is the dissemination of tumor cells following the diagnostic procedure. As a result of trauma, a malignant tumor may extend locally, to regional lymph nodes, or by blood-borne metastases. A great deal of work has been done along these lines and it is appropriate to review the pertinent material.

Any type of incision into a malignant tumor has always been condemned by some members of the medical profession. In the past, Bloodgood, Sir Watson Cheney, and Czerny[8] all went on record as being strongly opposed to biopsy. On the other hand, Ewing[8] believed that the information from biopsy was usually decisive and essential, and he stated that he had never seen any untoward results, whereas in cases of failure to biopsy he had seen many hopeless situations arise.

In 1913, Tyzzer[37] working with experimental tumors in mice concluded that the incomplete removal of cancer did not increase metastases, but did accelerate the growth of metastatic lesions. He also showed that massage of a malignant tumor did cause an increase in distant spread. It was later pointed out that Japanese waltzing mouse carcinoma employed by him did not always metastasize.

In 1919, Wood,[43] using the Flexner-Jobbling carcinoma in 673 rats, concluded that probitory incision did not increase metastases. In 1946, Maun and Dunning,[20] realizing that many clinicians were prone to avoid incisional removal of tumor for biopsy, because of the fear of disseminating malignant cells and believing that experimental evidence and medical opinion were not in accord, decided to investigate the problem using more biologically uniform material. They concluded from their work with rats and four different tumors that biopsy did not affect the survival period or the per cent of metastases, but that removal of a primary tumor decreased metastases and increased the survival rate.

Patterson and Nuthall,[26] in 1939, published an article evaluating the risk of incisional biopsy in ulcerating squamous carcinoma. This was a superficial biopsy with a minimal amount of manipulation. Two groups of well-selected cases of squamous carcinoma of the buccal cavity were employed and it was noted that 20.5 per cent of the cases not biopsied developed metastases, whereas 19 per cent of the cases biopsied developed metastases. This was a clinical study involving 166 cases and the authors concluded that biopsy of ulcerating squamous carcinoma did not increase metastases. In 1946, a report from the Central Institute of Radiotherapy[22] in Helsinki based on 8,000 cases stated that biopsy did not stimulate growth or increase metastases if taken prior to or during radiological therapy. In 1947, Ochsner, DeBakey and Dixon[23] condemned needle biopsy for possible cancer of the lung, because of several cases in which seeding had occurred along the path of the needle; they did not mention distant metastases. Ellis,[9] in 1947, stated that needle biopsy caused less disturbance and was therefore less dangerous

than other methods of study for non-ulcerating lesions, and he believed that his procedure was extremely practical for otherwise inaccessible tumors. Dukes,[7] in 1949, stated that any type of injury or rough manipulation may accelerate the growth of a tumor and cited work done on a large group of patients in the Strangeways Laboratory at Cambridge in which the taking of biopsies had no adverse effect on the survival rate of patients with uterine or cervical carcinoma. In a consideration of needle biopsy, Rosemond, Burnett, and Hall,[29] in 1949, followed 67 patients for five months to four years after operation and biopsy from lung lesions, and decided that the spread of tumor cells along the needle track had been overemphasized. In doing so, they mentioned that the majority of patients had died of distant metastases. In discussion of this article, Wood objected to aspiration biopsy on the basis that tumor seeding along the needle track does occur and that vascular metastases increase. In 1951, Crile and Vickery[6] reported an example of seeding along the needle track in a patient with thyroid carcinoma. In 1954, Robbins et al[28] at the Memorial Hospital concluded on the basis of a statistical study that aspiration biopsy of breast cancer had no deleterious effects on long-term survival rates among their patients.

In the Department of Surgery at Tulane University School of Medicine, it was found that no statistically significant difference could be demonstrated between the biopsy and control groups in a study conducted on the effect of needle biopsy on the spread of metastases using the Brown-Pearce and the V-2 tumors in rabbits.[17] It was also noted in several experimental animals that seeding along the needle track did occur and therefore the track should be excised or included in the plan of therapy.

It is obvious from the above review that the problem has not been finally resolved as to the safety or danger in the use of needle biopsy. There are particular situations, however, in which needle biopsy is effective and in the following paragraphs we will discuss them by site.

SITES

Neck. Tumors that occur in the neck frequently offer problems in differential diagnosis that require biopsy to solve, and the lesions are relatively superficial and easily approached. This is particularly true in metastatic lesions involving cervical lymph nodes where the primary is not obvious. It must be emphasized that a careful search for a primary lesion in the nasopharynx, oropharynx, and larynx should be carried out and that as a rule biopsy of a primary carcinoma, if discernible, should always be attempted before the secondary lesion. The routine studies whereby the diagnosis of a specific infection or granuloma can be established prior to biopsy should not be overlooked. In the case where the tumor consists of a carcinomatous cervical node, a needle biopsy here instead of an incisional biopsy will make subsequent surgery easier if a radical neck dissection has to be performed. In a patient with a lymphoma involving cervical or other lymph nodes, we prefer to utilize excisional biopsy as the pathologist usually needs the entire lymph node intact so that the architecture of the gland as well as the cells present may be studied in order to establish the diagnosis.

The diagnosis of tuberculous lymphadenitis may be made on the clinical findings, but if the diagnosis is not obvious, aspiration biopsy is desirable as there is less chance for ulceration and establishment of draining sinus tracts.

The use of needle biopsy in thyroid lesions is more debatable. Several investigators have recommended its use, particularly in diagnosing thyroiditis and its variations.[5, 6, 12] We favor surgical exposure in the diagnosis of thyroid masses. In several instances when we have elected to do needle biopsy for thyroid lesions, the patients have had difficulty due to hemorrhage in the thyroid gland or the neck. One such patient was an elderly woman with a thyroid mass in which we wished to rule out malignant disease. The patient refused operation and

needle biopsy was attempted. Tissue was obtained suggesting a nodular goiter; however, the hematoma that ensued required the patient to be kept under close supervision for several days, and left a residual mass that obscured accurate observation of the thyroid for a period of several months. With another patient in whom we wished to establish the diagnosis in suspected thyroiditis, we failed to obtain a specimen due to the fibrosis of the gland and again were troubled with a hematoma which required careful observation.

Soft tissue tumors of the neck or other peripheral sites, in which a microscopic diagnosis aids the planning of definitive treatment, are also suitable for the use of needle biopsy.

Breast. The breast is a very satisfactory site for the use of a needle biopsy. Radical mastectomy if the tumor is malignant also permits the removal of the needle track which we believe should be performed following the biopsy of a malignant lesion. We have also found it expedient to use needle biopsy in some lesions which may be benign and if confirmed, the tumor can be excised on an outpatient basis. We also find that having a positive needle biopsy in cancer cases saves considerable anesthesia time in the operating room as the frozen section, reprepping and draping can be avoided. It also provides for a better surgical field as a recent incisional biopsy wound with its dangers of spillage of tumor cells can be avoided. The negative needle biopsy in the breast as in any other area is meaningless and should we obtain a negative biopsy we then resort to conventional biopsy and frozen section.

There have been a few instances in which attempted needle biopsy in breast lesions has met with failure due to the dense fibrosis of the tissue to be biopsied. This type of disease generally is seen with chronic cystic mastitis in which there is marked fibrous involution; however, use of the Turkel needle should obviate this situation.

Lung. Our feeling is that the needle biopsy has little or no place in the management of lung lesions. Several patients with seeding along the needle track following biopsy have been noted in this clinic as has been reported above.[23] The author has observed another patient at the New Haven Hospital with a clinical diagnosis of carcinomatous seeding along the needle track following biopsy of a lung cancer. Should needle biopsy be essential in establishing a microscopic diagnosis prior to x-ray or nitrogen mustard therapy, the x-ray field should be designed to include the needle track.

Liver. The use of needle biopsy in diagnosis of liver lesions has become well-established.[2, 10, 21, 40, 44] Certain hazards exist in this situation and there is a definite mortality which was only 0.085 per cent in the series of 20,016 needle biopsies of the liver reviewed by Zamcheck and Klausenstock.[44] In a recent paper by Morey et al[21] the mortality was 0.72 per cent. A number of other patients will have complications due to bleeding, pain, or bile peritonitis. The incidence of successful diagnosis with needle biopsy for metastatic or primary lesions of the liver varies considerably. In a series reported by Finley and Brownson,[10] liver biopsy revealed neoplasm in 19 of 25 cases in which there was clinical suspicion of cancer. Ward et al[40] were able to demonstrate 82 positive diagnoses in 111 patients with proven primary or secondary hepatic neoplasms. Bowden and Kravitz[2] found neoplastic disease in 42 of 76 patients with suspected hepatic metastases. Sixteen of the remainder were later shown to be free of liver involvement and in 18 cases the biopsy was falsely negative. The success reported in establishing malignant disease with liver biopsy is rather remarkable in view of the large areas of liver which are grossly uninvolved as is frequently demonstrated at laparotomy or autopsy. In situations where laparotomy can be avoided by needle biopsy, the procedure would seem to be indicated.

Abdomen. As to needle biopsy of other abdominal organs, the danger of perforation of the bowel is such that the procedure is not warranted unless it is done at

time of laparotomy. In this regard, the operator may find a Silverman needle helpful in biopsying pancreatic or liver lesions.[6] On the other hand, diagnostic paracentesis with a Potter needle is frequently useful in the management of acute abdominal conditions, as reported by Thompson and Brown[35] at Charity Hospital, and should not be overlooked.

Kidney. Several workers have advocated the use of needle biopsy in diagnosis of renal diseases and the mortality seems relatively low.[3, 14, 25] In a series reported by Parrish and Howe,[25] out of 600 collected cases, there were two deaths, a mortality of 0.3 per cent. In this same paper, renal biopsy established a definitive diagnosis in 91 per cent of the patients, confirming the clinical diagnosis in only 39 per cent of the cases. These consisted of almost entirely nonmaligant conditions. In 9 per cent neither the pathologist nor the clinician could arrive at a definitive diagnosis. In general, the usefulness of needle biopsy in primary renal malignancy has not been demonstrated and also, the danger of rupturing the renal capsule in the patient with carcinoma of the kidney would further tend to condemn the procedure.

Bone. Needle biopsy of metastatic or primary lesions in bone in relatively inaccessible areas such as the bodies of the vertebrae makes this technique useful.[24, 25, 38] The Turkel needle is particularly designed for trephining of bone and has been found satisfactory in the more accessible lesions of bone as well.

Prostate. Needle biopsy has proven to be effective in the diagnosis of prostatic malignancy.[4, 15, 27, 30, 32] Kaufman, Rosenthal and Goodwin[15] reported a high degree of correlation between digital-rectal evaluation and open surgical biopsy (74 per cent), and needle biopsy (73 per cent). Prostatic smear in this same series of 110 cases showed correlation of 45 per cent when compared to the results of surgical biopsy. In the advanced lesions which could only be treated by endocrine therapy there was a high degree of correlation while in the remaining less advanced cases the correlation was lower. In these latter cases, the therapy of choice would be radical prostatectomy and presumably the patient would have a somewhat better chance of successful control if needle biopsy was not performed, due to the danger of local implantation of carcinoma. An article by Clark et al,[4] in 1953, reported a case of implantation of prostatic carcinoma in the site of perineal needle biopsy. In the more advanced lesions it would certainly seem to be an indicated procedure, especially when one reviews the figures from various tumor registries as prostatic cancer is a malignant lesion commonly treated on the basis of clinical impression rather than tissue examination. In the Tumor Registry of Charity Hospital in 391 cases of prostatic carcinoma in a three year period, 1948-50, we found that 24 per cent of the cases were treated on the basis of clinical impression alone. In Kaufman et al[15] series of 110 cases, the bladder was perforated 10 times and the rectum 4 times without untoward sequelae.

CONCLUSIONS

Needle biopsy is a technique that is useful as an aid in the diagnosis of malignant lesions. The danger of the dissemination of distant metastases following the use of needle biopsy apparently is slight if manipulation and trauma are kept at a minimum. Spread along the needle track may occur, therefore in those cases where the potential seeding of the track can be controlled by excision, radiation, or systemic therapy, the procedure may be elected. In those instances where seeding will not affect the patient more adversely than his disease, it may be used to establish a tissue diagnosis.

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NEW DRUGS—WHEN SHOULD WE USE THEM?

RICHARD B. LANGFORD, M. D.
SHREVEPORT

Each year several thousand new drug products are placed on the market. This includes new dosage forms of old drugs, new drug combinations, and drugs which have not previously been available in any form.

Unfortunately, many of these have been inadequately tested before being placed on the market. This is brought out from time to time in the medical literature in reports of previously unreported toxic reactions. Occasionally, toxic effects become apparent only after prolonged use. Therapeutic benefits resulting from the use of many new drugs frequently do not seem so wonderful after several months use as they did at first. This may be due to loss of enthusiasm on the part of the physician

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prescribing the drug or on the part of the patient.

The information we receive concerning these new drugs comes from several sources. Most are reported first in experimental journals but these are read primarily by research workers and full time medical school teachers. Several months (sometimes several years) later the clinical journals intended for practicing physicians may have adequate reports on the new preparations. Ordinarily, the drug will be released for our use before or very soon after the reports in clinical journals. In order that we may be informed about these new drugs, the manufacturer or distributor sends literature to us in the form of advertisements in medical journals and in colorful folders which seem to arrive by the bushel in our office mail. We may even receive bright sample packages. Shortly after this, a representative (or drug detail man) calls at our office to tell us in person about the new preparation. The individual is usually impressed with the superiority of his company's product over that of its competitors. His judgment in the matter is colored by the fact that his company emphasizes to him the beneficial effects and minimizes the side effects and toxic effects in order not to dampen his enthusiasm in advertising the product. In turn, his income frequently is dependent directly or indirectly upon the volume of sales of his company's products in the area in which he works.

During the period of development of a new drug, one of our popular magazines is very likely to gather together a few fragments of information and publish a report for our patients to read. Many patients take any such magazine article to mean that the new drug is just the thing they have been needing and consequently we are approached from another direction with a request that we prescribe the new drug.

Most present day physicians are familiar with the events which transpired when Demerol (meperidine hydrochloride) was first placed on the market. At that time it was thought to be an effective drug in producing pain relief and at the same time it was felt that it would not produce addiction. Subsequently it was found that addiction was easier to produce with Demerol than with morphine.

Several years ago folic acid was brought out as an effective oral treatment for pernicious anemia. It will correct the anemia of pernicious anemia but will not prevent (and may even help produce) the development of the serious central nervous system damage which usually accompanies the untreated disease.

Phenylbutazone (Butazolodin) which is effective against arthritis, was found to produce bone marrow damage in a high percentage of cases. There have been several other drugs in this category.

Benzchlorpropamide (Hibicon) was brought out several months ago and now has been taken off of the market. I am not sure about the reason for this but evidently there is some question regarding its ability to produce toxic effects after long term use.

More recently, chlorpromazine hydrochloride (Thorazine) and meprobamate (Equanil and Miltown) have been introduced as drugs to relax all of our nervous patients. Thorazine has been shown to produce jaundice quite frequently and to produce agranulocytosis on certain occasions. Equanil has not been available for many months but untoward reactions are coming to light.[1]

Many more examples of reactions or inadequacy of new drugs could be cited. For a slightly different approach to the same subject one might profit by reading the excellent article by David P. Barr.[2]

What does this mean to the practitioner? The most important point is that each of us should make a point of finding what the various drugs will and will not do before prescribing them. We should consider the hazards of the drug we plan to use and should attempt to decide in our own mind if the beneficial effects expected warrant exposing the patient to the hazards. Many diseases are self-limited, and in such cases we must make every attempt to see to it that our therapy does not

actually increase the burden of recovery. We should limit the number of drugs given to an individual patient to those which we feel certain that he needs. The more drugs we give to each patient, the more risk we run of producing a toxic or an allergic reaction. The physician must accept the fact that untoward reactions will occur from time to time, even when meticulous care is used. We should attempt to keep the number of such reactions at a minimum. Our judgment should be much better than that of our patients regarding their need for treatment, so accordingly, the decision to use a certain drug should be based on our judgment rather than the patients' request.

In answer to the title of this paper "New Drugs — When Should We Use Them"? it is simple enough to say: (1) When we know what the action of the drug is, (2) when we know that it is relatively safe and (3) when we feel that it is the best drug for the individual we are treating.

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TREATMENT OF EPILEPTIC SEIZURES

In a recent report of the Council on Pharmacy and Chemistry by Yahr and Merritt,* some of the broad aspects of the problem and the current status of the drug therapy of epileptic seizures are presented. This report clarifies and summarizes much that will be helpful to the physician in treating the individual who has epileptic seizures. It points out that since convulsive seizures may precede other symptoms of disorders of the nervous system by many years constant re-evaluations are necessary.

Considerable progress has been made in the past two decades in both diagnosis and treatment of epilepsy. Epilepsy is a symptom-complex characterized by periodic transient episodes of alteration in the state of consciousness, which may be associated with convulsive movements, and/or disturbances in feeling or behavior. The authors point out that before beginning treatment it is important to define properly the type of seizure and detect, if possible, the underlying disease process, as there are many conditions and diseases of the nervous system in which convulsive phenomena are prominent. The combined techniques of electroencephalography, pneumoencephalography, and angiography have made it possible to verify specific seizure types and to uncover pathological processes previously not diagnosed except at operation or autopsy.

When a structural defect or physiological disturbance of the brain can be demonstrated the convulsive disorder is described as symptomatic of such condition. When adequate inquiry reveals no organic background for the seizures there remains, as we all know, a large group of cases who have seizures called epilepsy. Clinical manifestations that occur during this seizure are related to the site of origin of the abnormal discharge that initiates the seizure and to the rapidity and extent of the spread of the discharge. Classification is made on this basis and not on the pathological process responsible for the attacks. The attacks are grouped as grand mal, focal, psychomotor, and petit mal.

Grand mal seizures occur with or without aura and are characterized by sudden loss of consciousness folowed by generalized tonic and clonic spasms of the musculature.

Focal seizures have some clinical manifestation that indicates their site of origin as in the cerebrum. A classical example of

* Yahr, M. D. and Merritt, H. H.: Current status of the drug therapy of epileptic seizures, J.A.M.A. 161:333, (May 26) 1956.

focal attack is the so-called Jacksonian seizure.

Psychomotor attacks are characterized by automatic pattern movements with clouding of consciousness and postictal amnesia for the episode, which may extend over two or three minutes.

The typical petit mal attack is characterized by sudden brief lapse in consciousness with minor motor movements of the head, eyes, or extremities. The duration is five to thirty seconds.

The objective of the anticonvulsant therapy is to establish and maintain a reservoir of drugs sufficient to control the seizures while producing a minimum of side reactions. The drugs currently employed are:

Barbituric Acid Derivatives. — Phenobarbital, mephobarbital, metharbital and primidone.

Hydantoin Derivatives. — Diphenylhydantoin sodium (Dilantin) and methylphenylethylhydantoin (3-methyl-5, 5-phenylethylhydantoin). (Mesantoin)

Oxazolidine Derivatives.—Trimethadione (Tridione) and paramethadione. (Paradione)

Phenylacetylurea Derivative.—Phenacemide. (Phenurone)

Succinimide Derivative.—Phensuximide.

Carbonic Anhydrase Inhibitor. — Acetazolamide.

It is pointed out that the anticonvulsants have no fixed dosage and the dose to be employed is the amount necessary to control seizures unless toxic reactions make necessary reduction of the dose or withdrawal. When toxic reactions occur it is advised that the dose be reduced and another drug added as it is frequently found that the combination of drugs is more effective than a single drug. This is true if more than one type of seizure exists. Diligence and patience are necessary to find by this method of trial and error the best possible combination of drugs and the optimal dosage schedule for each individual patient. The initial drug of choice for all types of seizures except petit mal are diphenylhydantoin sodium and/or phenobarbital. When the drowsiness and lethargy of phenobarbital effect does not disappear with the continued use of the drug, these symptoms may be relieved by the use of amphetamine sulphate in doses of 5 to 20 mg. daily. The toxic effect uniquely seen with diphenylhydantoin sodium is hypertrophy of the gums and this requires special attention to the gums with the emphasis on good dental hygiene. Methylphenylethylhydantoin (Mesantoin) has drowsiness as a frequent side effect and also allergic skin eruptions. A more serious toxic effect is degeneration of the bone marrow which may occur during its administration. Patients taking this drug should have a complete blood cell count once a month throughout the period of treatment.

Mephobarbital and metharbital have an effect similar to phenobarbital and less sedative action. Primidone because of undesirable side effects is seldom given in full therapeutic dose; when used it is best combined with other drugs, usually diphenylhydantoin sodium.

The use of bromides entails frequent determination of serum bromide levels. Their administration now is chiefly for patients in whom all other drugs have failed.

Phenacemide is of infrequent use because of its toxic effects.

Acetazolamide (Diamox) is a type of agent recently employed in the treatment of epileptic seizures. The drug has acidifying and dehydrating properties. To which of these properties anticonvulsant action can be attributed is unknown. The toxic effects of long continued usage may be serious in some patients.

The treatment of petit mal requires special considerations whether it exists alone or in connection with the other three types of seizures. Particular drugs for its control are necessary and these are not effective against the other types of seizures. The drugs to be used for petit mal are trimethadione, paramethadione, and phensuximide, in that order. Any of the three may have some undesirable side reactions. Possibly combination of the first two may give better effect than either one alone. Toxic reactions may be aplastic anemia,

agranulocytosis and nephroses.

The status epilepticus exists when seizures occur with such frequency that recovery from effects of one attack does not occur before the next attack supervenes.

This condition is a medical emergency best handled in the hospital. Adequate support is essential with attention to the need for fluids, electrolyte balance, possible dehydration, and support of nutrition. The drugs recommended are phenobarbital sodium, amobarbital sodium, and paraldehyde.

Yahr and Merrit list the causes for failure and emphasize that good results are dependent upon thorough evaluation of the neurological status, critical classification of the type of seizure, and painstaking establishment of adequate drug therapy. They consider that seizures can be completely controlled in 50 per cent of the patients and greatly reduced in another 35 per cent. Some of the faults to be avoided are improper classification of the seizure type, failure to recognize the progressive neurological disease, failure to use proper drugs, to administer proper dosage, and the frequent shifting of drugs. They consider that two to three years' treatment should continue after the last seizure, and when medication is discontinued it must be done gradually over a period of a year or so. They urge the proper indoctrination of patients as to the aims and methods. They urge that the patient be made to feel that with the control of his seizures the opportunity for assuming his rightful place in society exists. The article is a clear and compact summary that the physician will find a valuable help in the care of the epileptic or the one who seems to be an epileptic.

—o—

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

THE SEARS-ROEBUCK FOUNDATION

A year ago the Sears-Roebuck Foundation, in cooperation with the American Medical Association, made a grant of $125,000 for the establishment of a Revolving Assistance Fund. The purpose of this fund was to make loans to physicians desiring to establish or improve medical facilities in areas where the medical care is inadequate. It is the intention of the Foundation to continue to make this grant to the Revolving Fund each year. Evaluation of all applications is done by a Medical Advisory Board composed of prominent and highly qualified physicians appointed by the Trustees of the American Medical Association.

In the short time the fund has been in existence, 22 loans have been made affecting 33 physicians from 13 states. Loans ranged from $3,000 to $25,000, and total loans amounted to $179,500. Loans have gone to general practitioners, specialists, partnerships and medical groups. The sole criteria, besides medical proficiency, have been the need of the community for medical care. So that the Revolving Fund may grow, all repayments, principal and interest, go into the fund for future loans. There is no charge to this fund for administration of the program. This is met by another Foundation grant.

In 1956 it was necessary to have two cut-off dates in processing applications—April 1 and October 1. Applications received before April are decided upon before June 15. Applications received before October 1, shall be acted upon by December 15. The Foundation is now accepting applications for the last half of 1956.

This is a great opportunity offered physicians and communities to provide a real service to people in respective sections of our state not now having adequate medical coverage or medical facilities. This is a 10-year, non-secured loan ranging from zero to six per cent interest depending on the rapidity of repayment.

Undoubtedly, there are many physicians in our state who are not aware of this opportunity to improve existing facilities or to establish themselves in private practice in rural or suburban areas. The April 1 cut-off date is ideal for graduating interns since loans are approved in June which is generally the time they graduate. The October cut-off date is ideal to aid those established physicians who have poor medical facilities and are now in a position to incur the responsibility of building or improving their medical units.

This revolving assistance fund has great potential. It is now growing very rapidly. The future of this fund, to be of the greatest service to the medical profession in the field of medical distribution, depends entirely upon how well physicians and communities become informed of the existence of such wonderful advantages and opportunities offered by the existence of this fund.

Physicians who are completing their internship and residencies have a golden opportunity to locate in desirable communities by obtaining financial assistance through this fund.

We sincerely hope many of our physicians will avail themselves of the offer by this foundation, thereby relieving themselves of financial troubles in getting happily located to practice their chosen profession.

—o—

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

NEWS ITEMS

Dr. Irwin M. Marcus addressed the Louisiana Chapter of the American Association of Psychiatric Social Workers on "Levels of Group Psychotherapy" on June 28th at L.S.U. Medical School.

The Louisiana Group Psychotherapy Society was recently accepted as an affiliate organization by the American Group Psychotherapy Association. The officers elected are: Dr. Irwin M. Marcus, President; Dr. Robert Lancaster, President-elect; Dr. Irvin Kraft, Treasurer; Dr. Morton Enelow, Corresponding Secretary; Mr. Knox Price, Secretary.

The New Orleans Psychoanalytic Society, a member of the American Psychoanalytic Association, elected as its new officers Dr. Henry Miles, President; Dr. Theodore Watters, President-elect; Dr. Irwin M. Marcus, Secretary-Treasurer.

FURTHER DRUG EXPERIMENTS MAY EXPLAIN EPILEPSY

A new drug, which almost completely controlled epileptic seizures in 34 of 126 patients, eventually may help explain the physiological basis of the seizures, three Boston physicians said recently.

The drug acetazolamide (Diamox) caused a 90 to 99 per cent reduction in seizures in 12 other patients, a 50 to 90 per cent reduction in 22, and a smaller reduction in the remaining 58, the doctors said in the Jan 28 Journal of the American Medical Association.

Epilepsy is characterized by sudden disturbances of brain function, resulting in temporary loss of consciousness. The attacks range from minor to major ones. It may have a hereditary basis or have other causes, including brain injury, a disease in another organ which acts on the brain, emotional disturbances, and alcoholism.

In the past it has been found that changes in the amount of carbon dioxide in the blood, which affect the body's acidity, influence the course of epilepsy. An increase in acidity has been helpful for young persons and certain other types of epileptics. This acidosis has been achieved by diets, inhalation of carbon dioxide, and other methods, but all of them have been limited in use.

RECOVERY FROM PULMONARY EMBOLISM FOLLOWS PROLONGED LEVOPHED USE

Large doses of Levophed (nor-epinephrine), administered by intravenous drip continuously over a period of 11 days, were responsible for the recovery of a patient with massive pulmonary embolism, according to Dr. J. de Swiet of Llanelly Hospital, England.

He states in the **British Medical Journal** (2:

1252, 1955) that medical literature reports only one previous instance of Levophed's use to treat this "common and often fatal emergency." It remains the "most sinister" of post-operative complications. The value of Levophed, the author comments, is known to many doctors, but "deserves to be widely appreciated."

Massive pulmonary embolism was diagnosed in a 49-year-old male patient following a partial gastrectomy, precipitating severe hypotensive shock. An intravenous infusion of Levophed was started in an initial strength of four mg. in a liter of saline solution at an average drip rate of 30 drops a minute. The concentration of the solution and the rate of infusion were varied according to blood pressure readings.

PAN-PACIFIC SURGICAL ASSOCIATION

Seventh Congress
Honolulu, Hawaii
November 14-22, 1957

The Seventh Congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii November 14-22, 1957. All members of the profession are cordially invited to attend and are urged to make arrangements as soon as possible if they wish to be assured of adequate facilities.

An outstanding scientific program by leading surgeons with sessions in all divisions of surgery and related fields promises to be of interest to all doctors.

Further information and brochures may be obtained by writing to Dr. F. J. Pinkerton, Director General of the Pan-Pacific Surgical Association, Room 230, Young Building, Honolulu, Hawaii.

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The American College of Gastroenterology announces that its Annual Course in Postgraduate Gastroenterology will be given at The Roosevelt in New York City, on 18, 19, 20 October 1956.

The Course will again be under the direction and co-chairmanship of Dr. Owen H. Wangensteen, Professor of Surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator and Dr. I. Snapper, Director of Medical Education; Beth-El Hospital, Brooklyn, N. Y., who will serve as medical co-ordinator. Drs. Wagensteen and Snapper will be assisted by a distinguished faculty selected from the medical schools.

The subject matter to be covered in the course, from a medical as well as surgical viewpoint, will cover, essentially, the advances in diagnosis and treatment of gastrointestinal diseases and a comprehensive discussion of diseases of the mouth, esophagus, stomach, pancreas, spleen, liver and gallbladder, colon and rectum, with special studies of radiology and gastroscopy.

For further information and enrollment write to the American College of Gastroenterology, Department P.G., 33 West 60th Street, New York 23, N. Y.

CLEANER AIR MADE POSSIBLE BY NEW ELECTRONIC FILTER

The power of the electron, widely used in industrial smoke abatement and dust reclamation programs, has been harnessed this spring to help keep the home cleaner.

Now on the market are three RCA WHIRLPOOL room air conditioners with built-in electronic filters.

An electronic charge on the filter grabs particles from the air, as it circulates and recirculates through the air conditioner, and holds them fast. Air-borne matter one-tenth the size of particles which can be efficiently held by ordinary mechanical filters is stopped before it enters the home.

For the housewife, the electronic filter means a reduction of dust, soot, and pollens in the home. With less dirt, cleaning is easier and life and beauty of fabrics and painted surfaces are prolonged.

Cleaner air made possible by the new filter is easier to breathe—an important comfort factor in the pollen season.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

EXECUTIVE BOARD

The 1956-57 Executive Board and Executive Committee of the Woman's Auxiliary to the Louisiana State Medical Society is composed of the following members:

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Mrs. Edwin Socola, New Orleans
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Mrs. Creighton Shute, Opelousas
Yearbook:
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BOOK REVIEWS

Angiographic Localization of Intracranial Masses; by Arthur Ecker, M. D., Ph. D. and Paul A. Riemenschneider, M. D., Springfield, Illinois, Charles C Thomas, 1955. pp. 433, 413 Illustrations. Price $13.50.

Radiologists and neurosurgeons will find in the first section of this atlas, useful diagrams of the angiographic patterns made by the more common brain tumors, and in the second section, good reproductions of angiograms from 100 cases illustrating the experiences of the authors at the new Upstate Medical Center of the State University of New York. This work is a substantial contribution to a subject which has received less attention in the United States than in Europe since the introduction of angiography, in 1927, by Egaz Moniz and Almeida Lima.

Carotid and vertebral angiograms are illustrated. The authors employed the open technique for the former and the indirect method (injecting the exposed right common carotid artery retrograde to the direction of flow, with the right brachial artery occluded) for the latter, and special attention was given to careful posturing of the head. Anterior-posterior and lateral projection were commonly used, and exposures were made in arterial and venous phases. Occipital and optic foramen views, as well as submento-vertex projection are also shown in a few cases.

The data is presented from the point of view of the location of an intracranial mass. Of the supratentorial lesions there were: 30 gliomas, 10 meningiomas, 19 hematomas, 7 infection processes, 4 pituitary adenomas, 2 each—pinealomas, craniopharyngiomas, metastatic carcinomas, and melanomas. There were also 5 brain stem lesions, including 3 hematomas, 1 glioblastoma, and 1 aneurysm. Finally, there were 11 posterior fossa lesions; notably, 3 hemangiomas, 3 medulloblastomas, 2 acoustic tumors, and 1 each—metastatic carcinoma, glomus jugularis tumor, and cerebellar abcess. Little effort is made to evaluate the relative merits of other diagnostic methods, although case histories are given for the reader to draw his own conclusions.

Displacements of vessels by supratentorial lesions are presented in the following detailed groups:

I. Perisellar—intra, pre, and supra.

II. Perisylvian—infra, inter, and supra.

III. Midline—1. callosal—anterior and posterior 2. parasagittal—frontal, fronto-parietal, and parietal.

IV. Frontal—lateral, medial (anterior callosal), polar, central, and basal.

V. Temporal—medial, infromedial, and posterior.

VI. Occipital.

These amplify the well established patterns given by Carl List and Almeida Lima and are made very clear by diagrams. Downward displacements of the anterior choroidal artery and increased kinking of distal portions of the larger vessels are particularly noted. The occurrence of edema and glial invasion of the brain may make precise interpretations of these displacements hazardous. Of course, the clinically probable tissue diagnosis may help x-ray interpretation.

Similar displacements of posterior fossa lesions include: 1. Depression of the posterior inferior cerebellar artery into the foramen magnum. 2. Upward displacement of the anterior choroidal artery. 3. Small curvilinear displacements of larger vessels.

Recent description of the anterior choroidal artery by Cooper in 100 cases presumed to be normal should be consulted for details not included in the author's discussion. Dural venography is not included, and the intrinsic circulation of tumors is likewise not presented. From a surgical point of view this is unfortunate, since one of the most helpful aspects of angiography is the demonstration of the vascular channels related to a tumor. Not only can the feeding artery or venous drainage be attacked with greater assurance when it is known, but the tissue diagnosis may be partially limited by the size and position of the vessels.

The data suggesting compression of the optic chiasm by the intracranial internal corotid and its branches is as yet fragmentary. The cases presented are suggestive, but require confirmation by other observers before this condition can be diagnosed with certainty.

W. Randolph Page, M. D.

PUBLICATIONS RECEIVED

Budlong Press, Chicago: A Doctor's Marital Guide for Patients, by Bernard R. Greenblat, M. D.

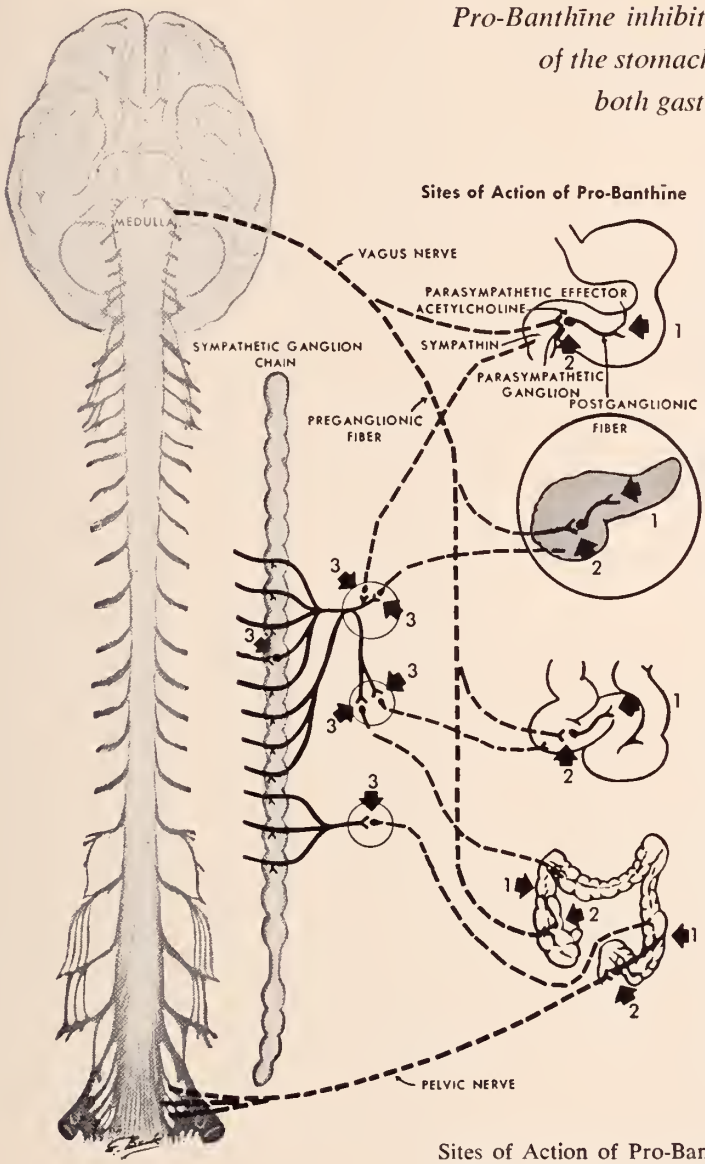
Philosophical Library, N. Y.: Plastic Repair of Genito-Urinary Defects, by George Bankoff, M. D.

W. B. Saunders Co., Phila.: The Recovery Room, Immediate Postoperative Management, by Max S. Sadove, M. D., and James H. Cross, M. D., with contributions by 24 authorities; Treatment of Heart Disease, a Clinical Physiologic Approach, by Harry Gross, M. D., and Abraham Jezer, M. D.; Collected Papers of The Mayo Clinic and The Mayo Foundation, edited by Richard M. Hewitt (Vol. XLVII).

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1. Jones, C. A.: Arch. Int. Med. *96*:332 (Sept.) 1955.
2. Zollinger, R. M.: Postgrad. Med. *15*: 323 (April) 1954.
3. Woodward, E. R.: M. Clin. North America *38*:115 (Jan.) 1954.
4. Schwartz, I. R., and Hinton, J. W.: Personal communication, February, 1955.

Sites of Action of Pro-Banthīne. *The principal site of action of Pro-Banthīne is on the parasympathetic system where it exerts a dual action while exerting a single and lesser action on the sympathetic system: (1) parasympathetic effector; (2) parasympathetic ganglion; (3) sympathetic ganglion (see arrows).*

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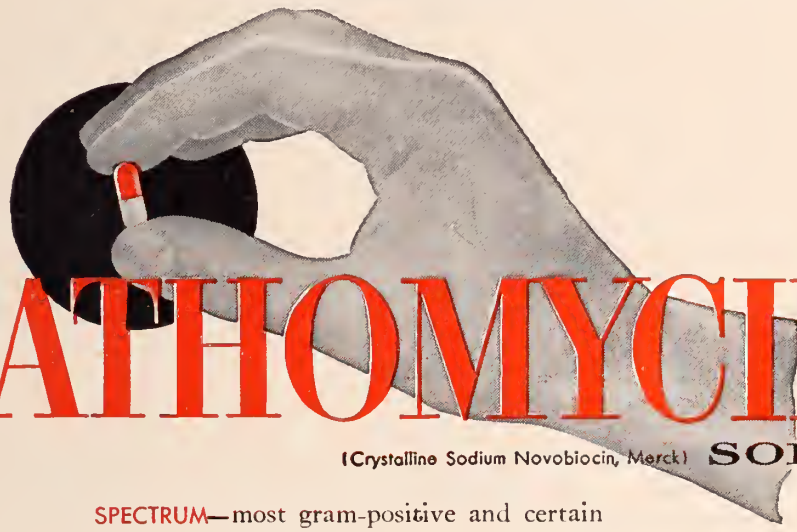


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WITH THE Davis technique,† using VAGISEC® liquid and jelly, flare-ups of vaginal trichomoniasis rarely occur. VAGISEC liquid actually explodes trichomonads within 15 seconds after douche contact.[1] Better than 90 per cent apparent cures follow use of this new trichomonacide,[2] developed as "Carlendacide" by Dr. Carl Henry Davis, noted gynecologist and author, and C. G. Grand, research physiologist.[3]

No trichomonad escapes—The overwhelming action of VAGISEC liquid dooms the trichomonad. One chelating agent and two surface-acting agents combine in attack to weaken the cell membrane, to remove waxes and lipid materials from the membrane surface, and to denature the protein. With its cell wall destroyed, the parasite imbibes water, swells and explodes. All this occurs within 15 seconds. Only scattered fragments remain.

No other agent or combination of agents kills the trichomonad in this specific fashion or with the *speed* of VAGISEC liquid.[3] When the patient uses VAGISEC jelly as well—the recommended routine—these good effects continue indefinitely.[4]

Reaches hidden trichomonads—Unlike many agents, VAGISEC liquid thoroughly penetrates and dissolves the cellular debris and mucoid material lining the vaginal surface.[3] It reaches hidden trichomonads — often the cause of treatment failure — as well as parasites swimming freely in the canal.

The Davis technique—Office therapy with VAGISEC liquid is combined with home treatment. Both liquid and jelly are prescribed.

> OFFICE TREATMENT—*Wipe vaginal walls dry with cotton balls, then wash thoroughly for about three minutes with a 1:100 dilution of* VAGISEC *liquid. Remove excess fluid with cotton balls. Dr. Davis recommends three treatments the first week, two the second and one the third.*
>
> HOME TREATMENT—*Patient douches with* VAGISEC *liquid every night or morning and then inserts* VAGISEC *jelly. Home treatment is continued through two menstrual periods, but omitted on office treatment days. Douching is contraindicated in pregnancy.*

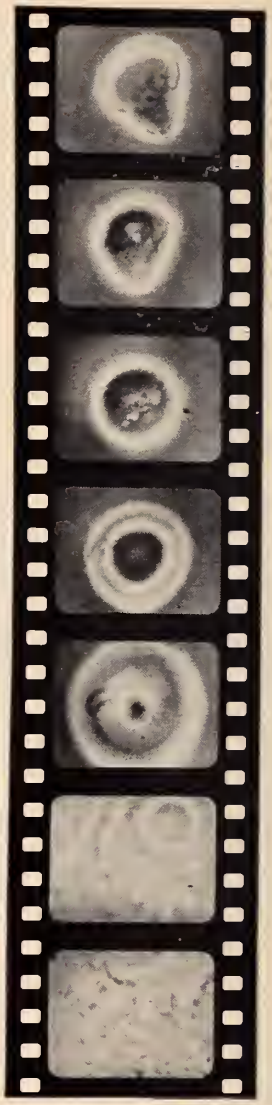
Husband re-infects wife—Since "trichomonads may be passed from the infected male to the uninfected partner during coitus,"[5] prevent re-infection by recommending the use of prophylactics. Specify RAMSES,® the finest possible rubber prophylactic, transparent, very thin yet strong; or XXXX (FOUREX)® skins, of natural animal membrane — pre-moistened. Your prescription of one of these brands insures the protection afforded by Schmid quality prophylactics and assures full acceptance of your regimen. At all pharmacies.

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Top to bottom:
2 sec. CONTACTS
4 sec. COMPLEXES
6 sec. DISSOLVES
8 sec. DENATURES
10 sec. SWELLS
15 sec. EXPLODES
16 sec. SCATTERS

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anxiety is part of **EVERY ILLNESS**[1]

The physically sick patient faces two stresses—the sickness and the anxiety that it brings.[1] All too often, the anxiety is a threat to the patient's progress. It may intensify symptoms, give uncertainty to therapy, and impair rapport.

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1. Braceland, F.J.: Texas State J. Med. 51:287 (June) 1955.
2. Lemere, F.: Northwest Med. 54:1098 (Oct.) 1955.



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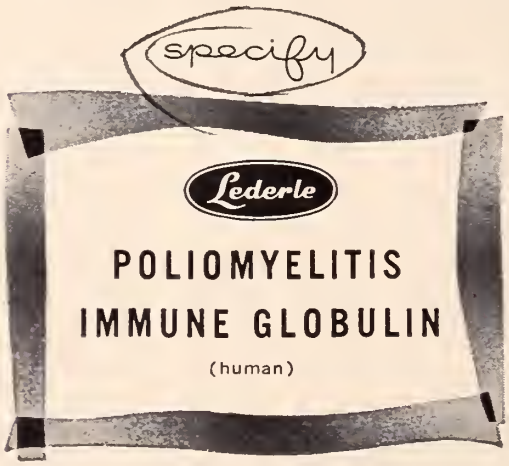
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For the modification of measles and the prevention or attenuation of infectious hepatitis and poliomyelitis.

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*Modell, W.: The Relief of Symptoms, Philodelphia, W. B. Sounders Company, 1955, pp. 265-266.

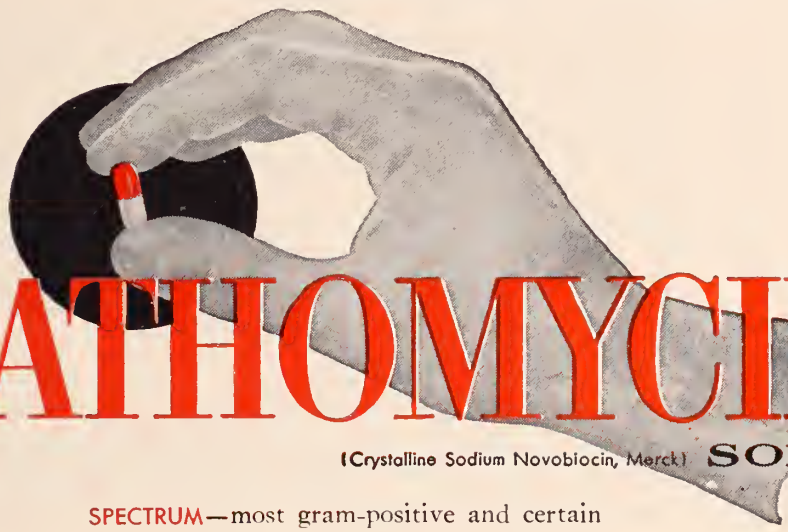
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PROVED EFFECTIVE AGAINST SPECIFIC ORGANISMS
(staphylococci and proteus)

RESISTANT TO ALL OTHER ANTIMICROBIAL AGENTS



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(Crystalline Sodium Novobiocin, Merck) SODIUM

SPECTRUM—most gram-positive and certain gram-negative pathogens.

ACTION—bactericidal in optimum concentration even to resistant strains.

TOXICITY—generally well tolerated. This is more fully discussed in the package insert.

ABSORPTION—oral administration produces high and easily-maintained blood levels.

INDICATIONS—cellulitis, pyogenic dermatoses, septicemia, bacteremia, pneumonia and enteritis due to *Staphylococcus* and infections involving certain strains of *Proteus vulgaris;* including strains resistant to all other antibiotics.

DOSAGE—four capsules (one gram) initially and then two capsules (500 mg.) twice daily.

SUPPLIED—250 mg. capsules of 'CATHOMYCIN', bottles of 16.

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A welcome clinical advance...
effective medication
in an appealing form



Soft and pliant as a tampon, the Milibis vaginal suppository offers proved therapeutic action* in a vehicle giving unusual clinical advantages to both patients and physician.

COVERS CERVIX AND VAGINAL WALL—The pliant Milibis suppository disintegrates readily and molds itself to the cervix as well as the columns and rugae of the vaginal vault.

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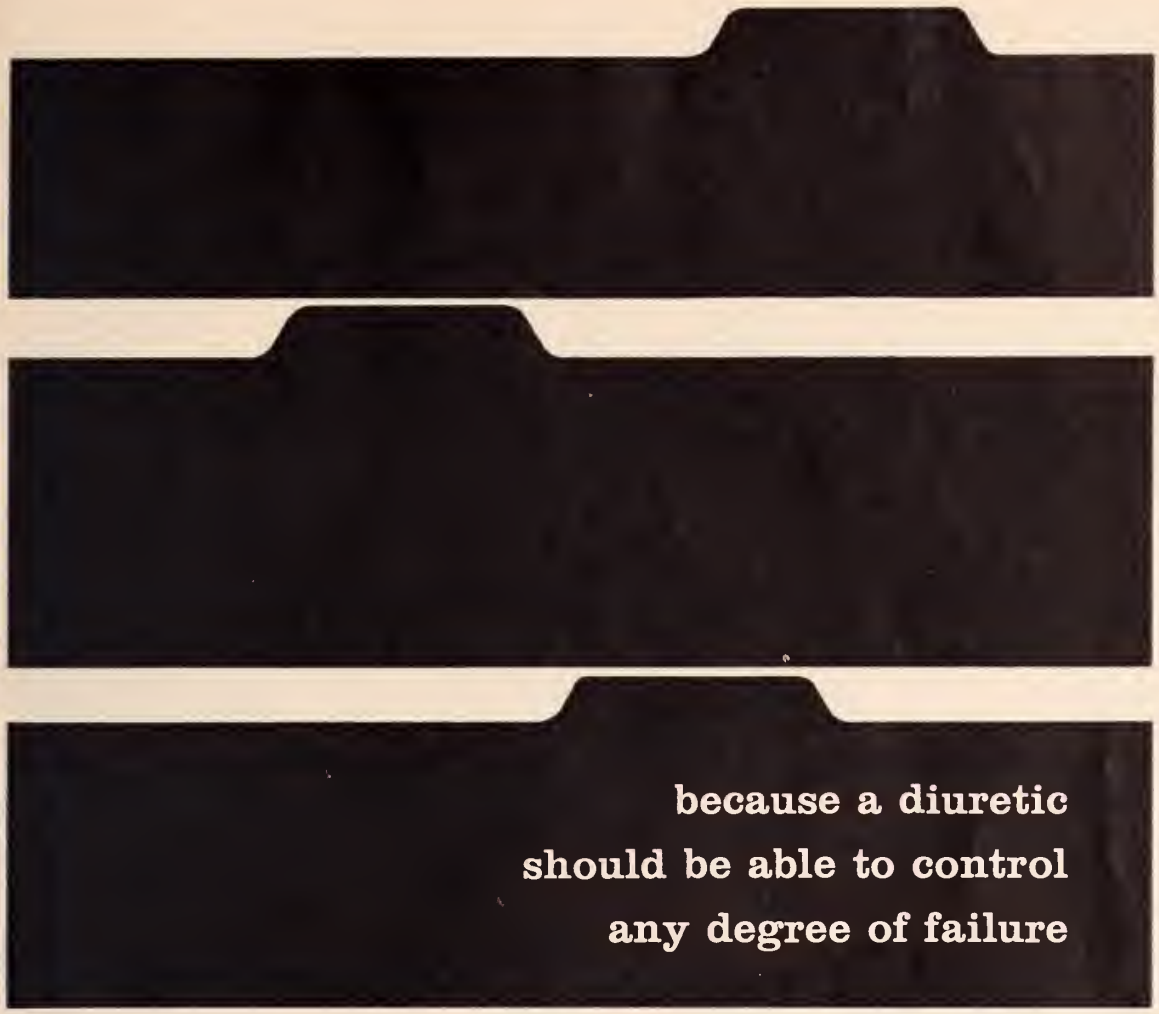
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Supplied: boxes of 10

*97 per cent effective in a study of 564 cases; 94 per cent effective in a series of 510 cases.

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Milibis (brand of glycobiarsal), trademark reg. U.S. Pat. Off.



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Certain diuretics are apt to mask the gradual onset of severe failure because they are effective only in the milder ambulatory cardiacs. The recurrent accumulation of fluid permitted by intermittent or arbitrarily limited dosage must eventually progress to more severe decompensation.

Because they can control *any* grade of failure, the organomercurials improve prognosis and prolong life.

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BRAND OF CHLORMERODRIN (18.3 MG. OF 3-CHLOROMERCURI-2-METHOXY-PROPYLUREA EQUIVALENT TO 10 MG. OF NON-IONIC MERCURY IN EACH TABLET)

a standard for initial control of severe failure

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In meeting the nutritional needs of formula-fed infants, the methods used are dependent upon the digestive capacity and tolerance of each infant.

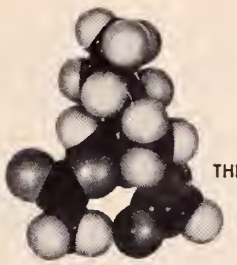
But, whether the formula calls for sweet, acid, evaporated, dried or protein milk—Karo syrup meets the need for a well-tolerated and easily digested source of carbohydrate. This fluid mixture of dextrins, maltose and dextrose is completely utilized without inducing flatulence, colic, fermentation or allergy.

Either light or dark Karo may be used in prescribing formulas for infants because of equivalent digestive and nutritive values. Each fluid ounce (2 tablespoonfuls) yields 120 calories.

Mothers will appreciate the ease of making formulas with Karo syrup... as well as its ready availability and economy.



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A tranquilizer well suited for prolonged therapy

NO ORGANIC CONTRAINDICATIONS

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- chemically unrelated to chlorpromazine or reserpine
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Indications: anxiety and tension states, muscle spasm.

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THE ORIGINAL MEPROBAMATE

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SUPPLIED: 400 mg. scored tablets. Usual dose: 1 or 2 tablets t.i.d.

Literature and Samples Available on Request

in inflammatory skin diseases



all the benefits of the "predni-steroids"
plus positive antacid action
to minimize gastric distress

ROUTINELY ACHIEVED WITH

'Co-Deltra'
(Buffered Prednisone)



Multiple Compressed Tablets

'Co-Hydeltra'
(Buffered Prednisolone)

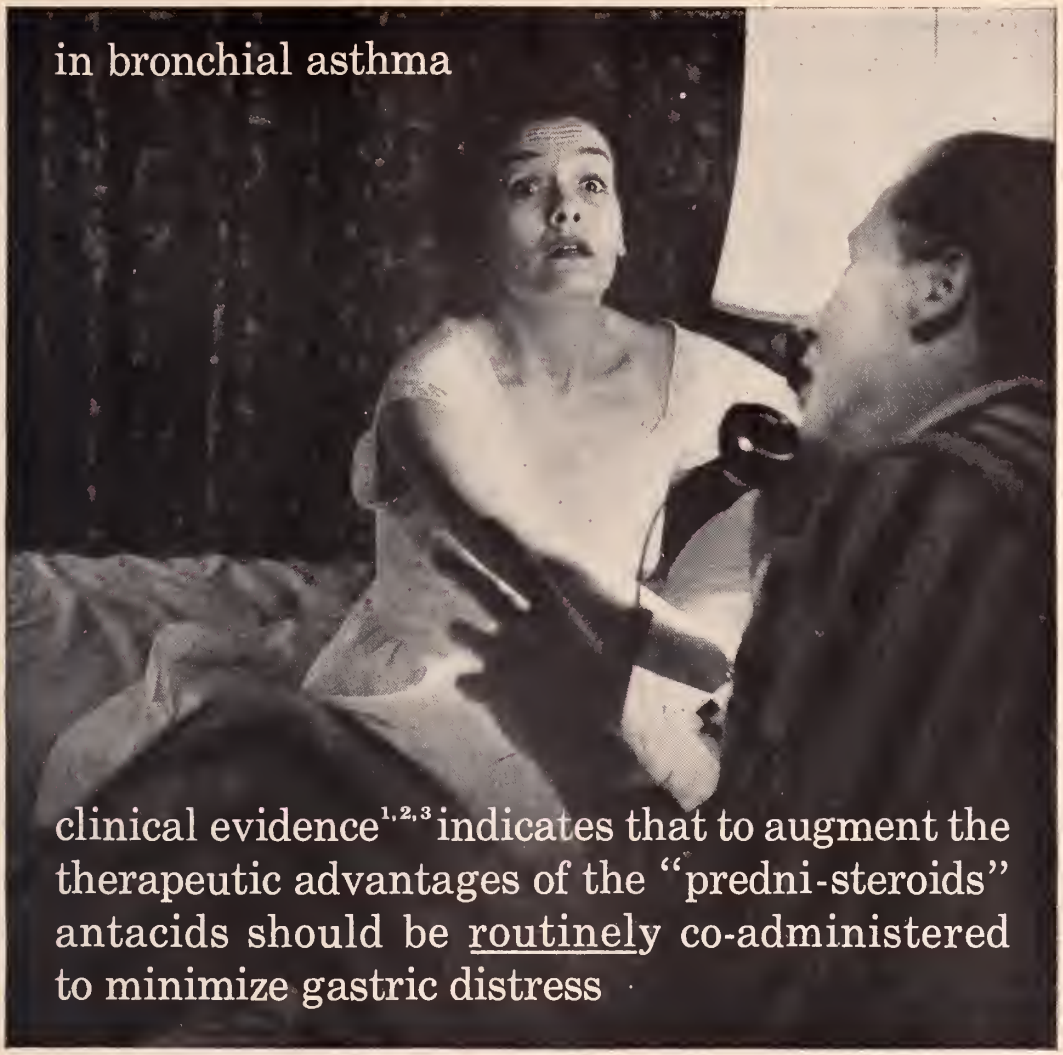
2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

Clinical evidence[1,2,3] indicates that to augment the therapeutic advantages of prednisone and prednisolone, antacids should be *routinely* co-administered to minimize gastric distress.

References: 1. Boland, E. W., *J.A.M.A.* 160:613, (February 25,) 1956. 2. Margolis, H. M. *et al*, *J.A.M.A.* 158:454, (June 11,) 1955. 3. Bollet, A. J. *et al*, *J.A.M.A.* 158:459, (June 11,) 1955.

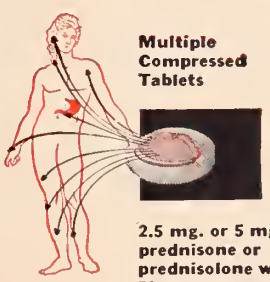
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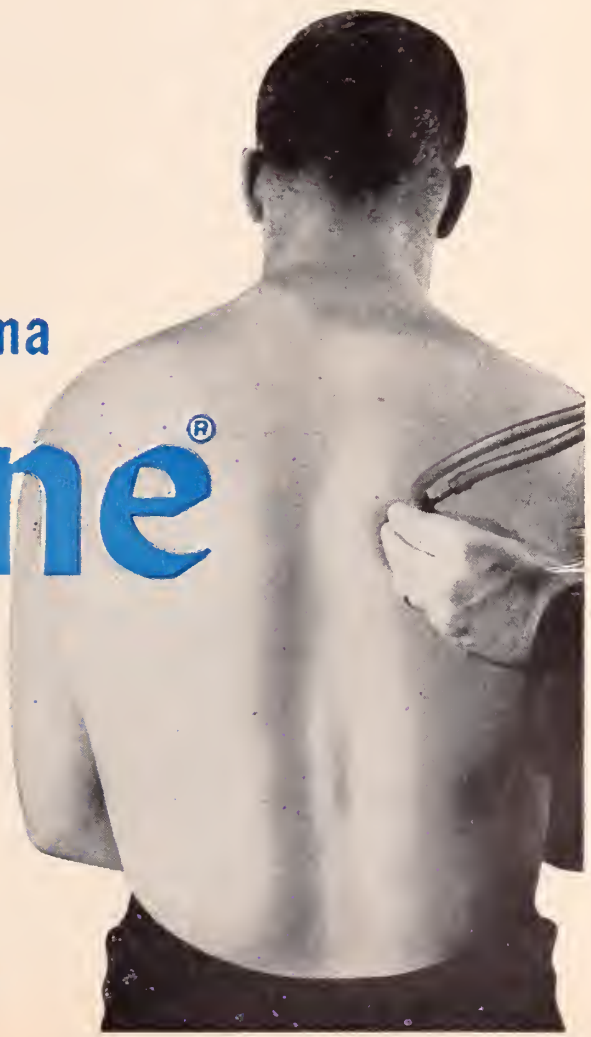
results are obtained with STERANE[1]—3 to 5 times more active than hydrocortisone or cortisone.

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capacity is greatly enhanced. "Relief of symptoms is more complete and maintained for longer periods with relatively small doses."[2]

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of minerals and fluids usually remains undisturbed. This proves "especially advantageous in those patients with cardiac failure requiring therapy . . ."[3]



in bronchial asthma

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brand of prednisolone

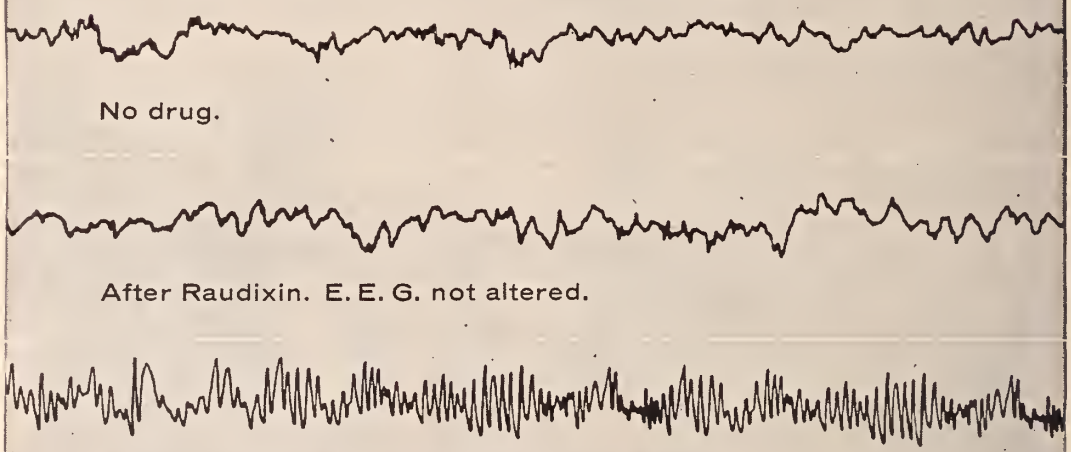
Supplied: White, 5 mg. oral tablets, bottles of 20 and 100. Pink, 1 mg. oral tablets, bottles of 100. Both deep-scored.

1. Johnston, T. G., and Cazort, A. G.: J. Allergy 27:90, 1956. 2. Schwartz, E.: New York J. Med. 56:570, 1956. 3. Schiller, I. W., et al.: J. Allergy 27:96, 1956.

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The Low Calorie Diet goes to work

For your patient who works and eats out, a diet that calls for lamb chops when lamb chops aren't on the menu is an invitation to "slip off." But a diet outline that allows for substitution leaves no excuse. And learning to fill in the details gives your patient incentive to stick to his diet.

Here's what he should learn—

That a chocolate bar doesn't equal a hamburger—except in calories. An alternative must be equivalent nutritionally as well as calorically.

That fresh fruits and vegetables such as celery, carrots, and radishes make satisfying between-meal nibbles without adding too many calories.

That spices and herbs, lemon and vinegar, and dill pickles add zest and variety with few or no calories.

Here's what he should do—

Keep an accurate daily record of his calorie count—between-meal snacks included!

At cocktail parties, reach for a radish rose or carrot stick instead of a high-calorie canapé. And choose the drink that lasts a long time.

Keep his diet out of the conversation. Sympathy from friends leads only to sympathy for himself. And self-pity is death to a diet.

The patient with a diet outline that permits personal choice learns good diet habits. Then with a glass of beer* to brighten simple meals, he's more likely to follow a balanced maintenance diet later. And the pounds he takes off, stay off.



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*104 Calories/8 oz. glass (Average of American Beers)

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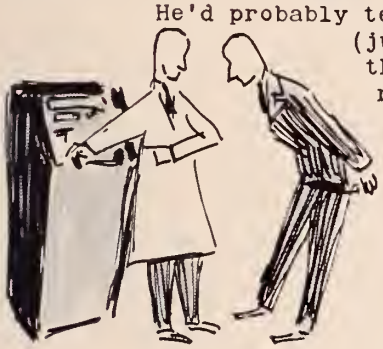
Clinical samples sent to physicians upon request.

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Boston, 18, Mass.

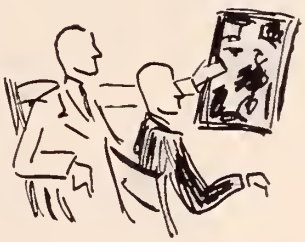
If you could visit with a user of the Picker Anatomatic Century x-ray unit you'd soon know why this remarkable "new way in x-ray" machine has come so far so fast.



He'd probably tell you first how incredibly easy it is to use (just dial the body part and set its thickness... then press the button). He might sigh with relief at having no charts to consult, no calculations to make (the anatomatic principle does all the tedious "figgerin" for you).



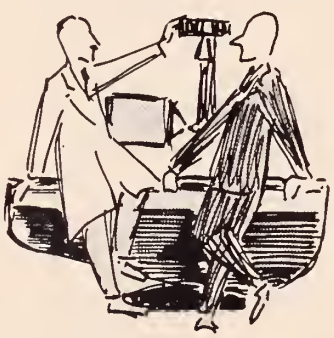
He'd probably show you how good a radiograph he gets every time





He might even touch on the peace-of-mind that comes of having a local Picker office so near, with a trained Picker expert always on call for help and counsel

and there'd be no mistaking the light in his eye when it falls on the handsome big-name unit whose fine appearance adds so much to the impressiveness of his office.



P.S. Somewhere along the line the matter of price would come up ... he'd most likely comment on how little he paid to get so much. Or he might even be among those who rent their x-ray machine (Picker has an attractive rental plan, you know).

P.P.S. Next best thing is to call your local Picker man in and let him tell you about this great new machine (find him in your 'phone book) or write Picker X-Ray Corporation, 25 South Broadway, White Plains, N. Y.

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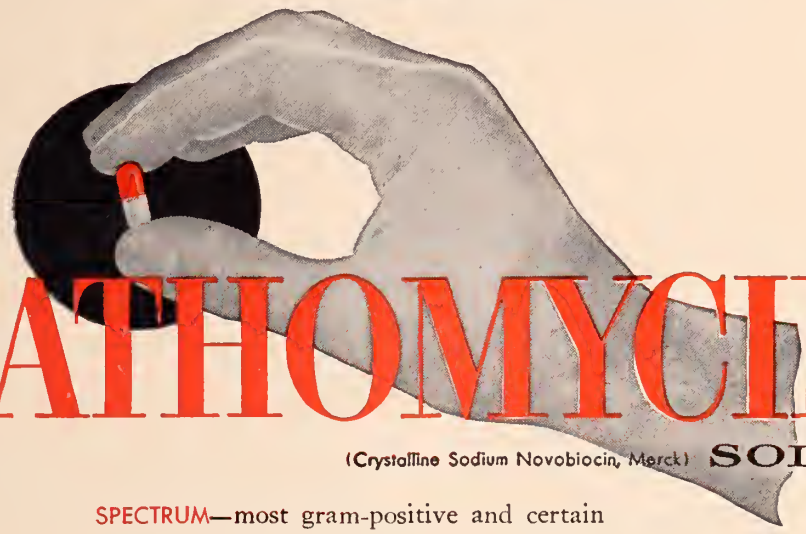
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International Cancer Cytology Congress

The First International Cancer Cytology Congress, sponsored jointly by the International Union Against Cancer, The College of American Pathologists, The American Society of Clinical Pathologists and the Inter-Society Cytology Council, will be held at the Drake Hotel, Chicago, on October 9, 10, and 11, 1956.

It is evident from the program, that the planners have evolved a series of broad discussions on the practical values of this effective diagnostic technique. It should therefore be of great interest to practicing physicians of all specialties in which cytology plays a part.

Copies of the program are available on request to the

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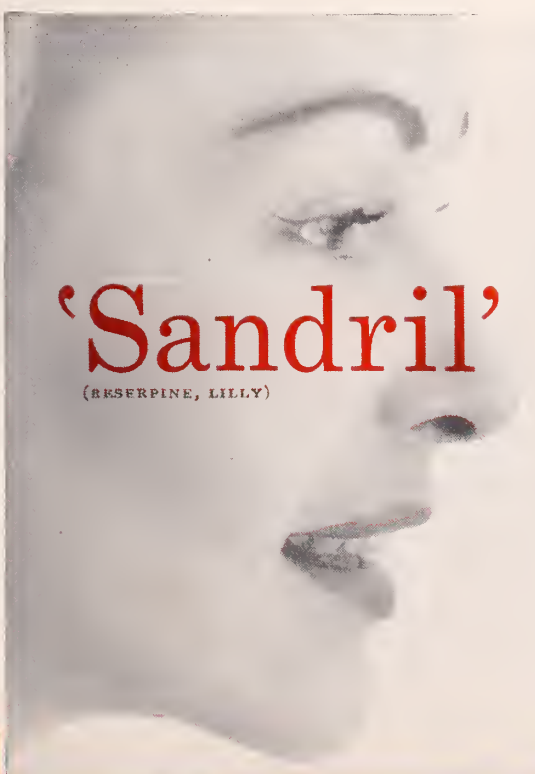
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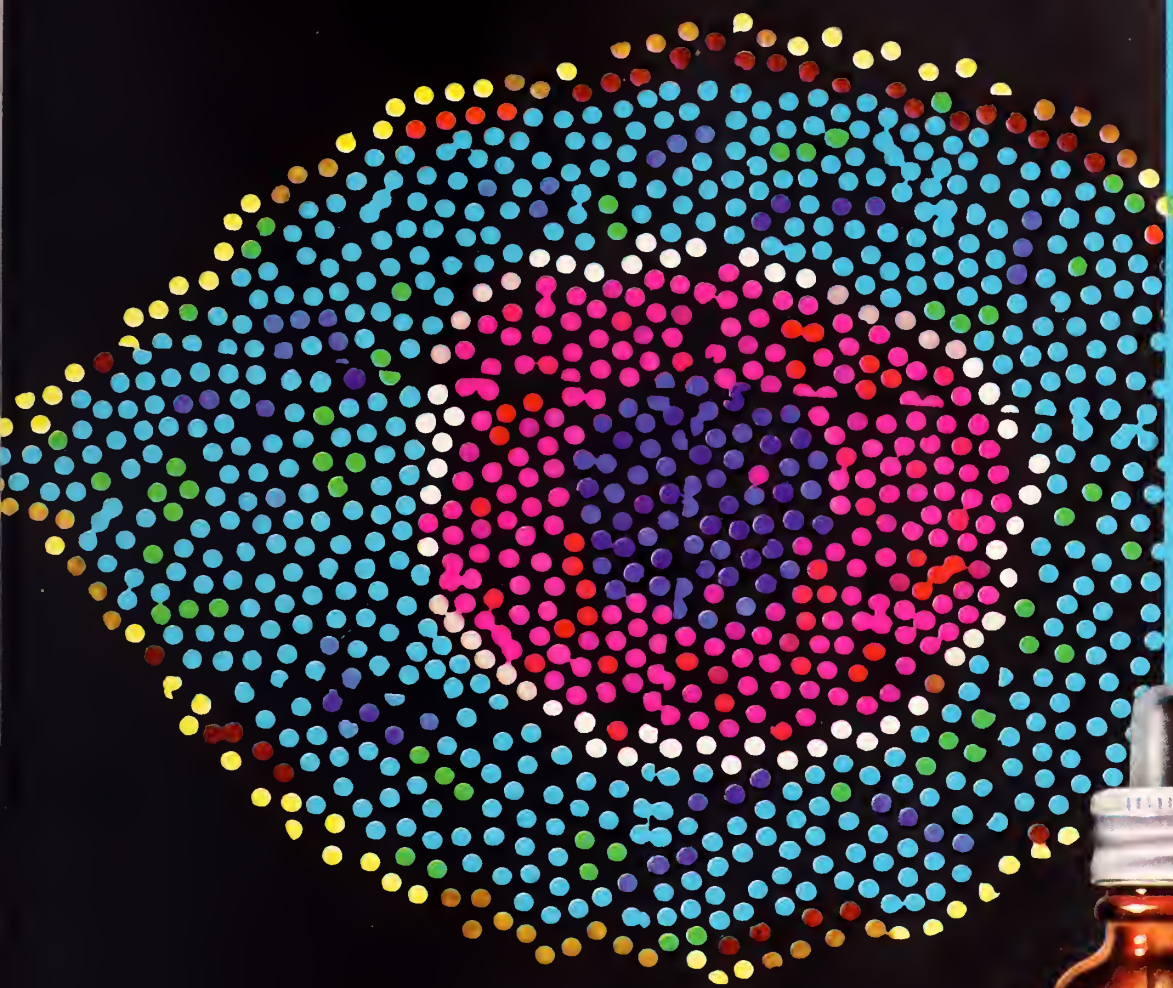
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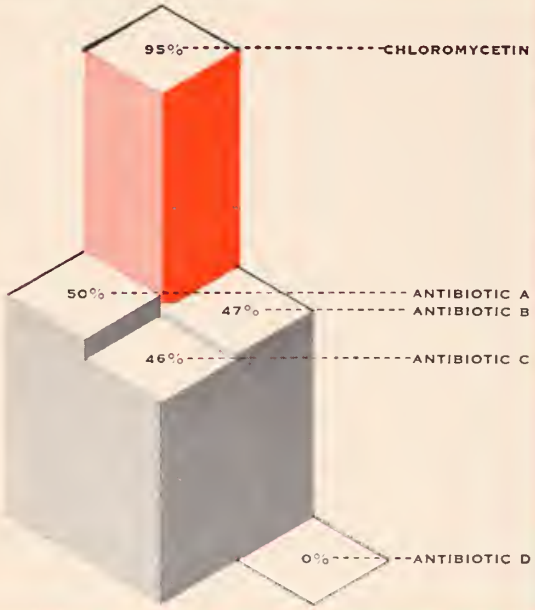
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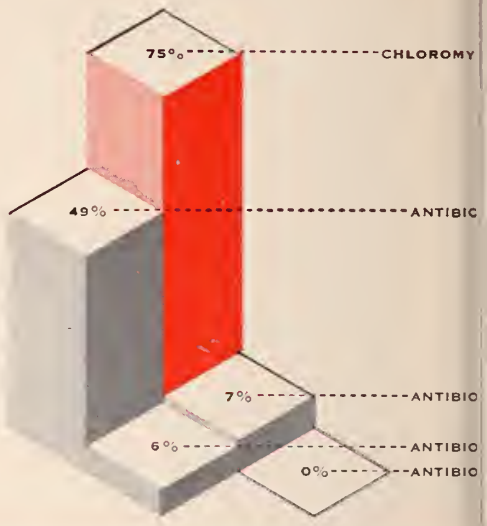
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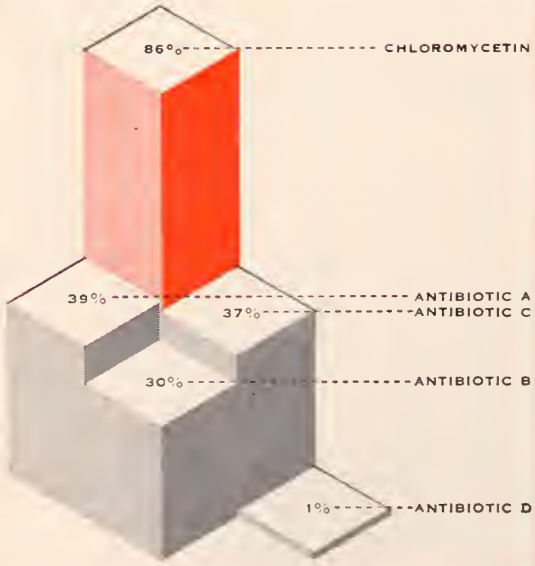


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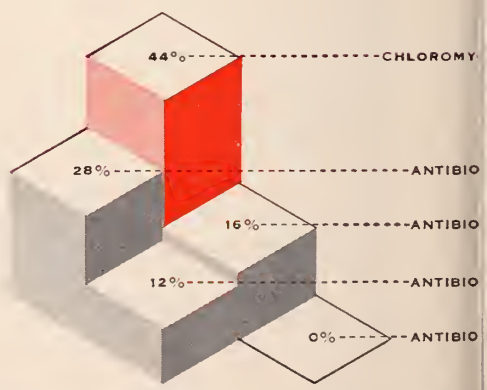


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References: (1) Felix, N. S.: *Pediat. Clin. North America* 3:317, 1956. (2) Joron, G. E.; Fowler, A. F.; de Vries, J.; Reid, G., & Mathews, W. H.: *Canad. M. A. J.* 73:956, 1955. (3) Weil, A. J., & Stempel, B.: *Antibiotic Med.* 1:319, 1955. (4) Perry, R. E., Jr.: *North Carolina M. J.* 16:567, 1955. (5) Jones, C. P.; Carter, B.; Thomas, W. L., & Creadick, R. N.: *Obst. & Gynec.* 5:365, 1955. (6) Murphy, F. D., & Waisbren, B. A., in Murphy, F. D.: Medical Emergencies: Diagnosis and Treatment, ed. 5, Philadelphia, F. A. Davis Company, 1955, p. 557. (7) Altemeier, W. A.; Culbertson, W. R.; Sherman, R.; Cole, W.; Elstun, W., & Fultz, C. T.: *J.A.M.A.* 157:305, 1955. (8) Horton, B. F., & Knight, V.: *J. Tennessee M. A.* 48:367, 1955.

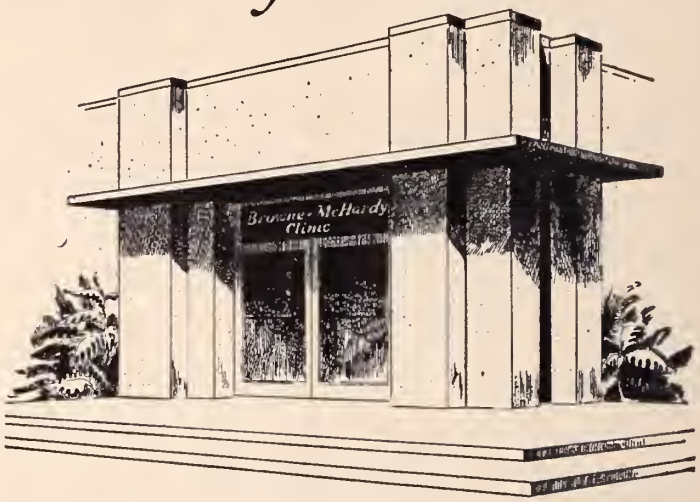
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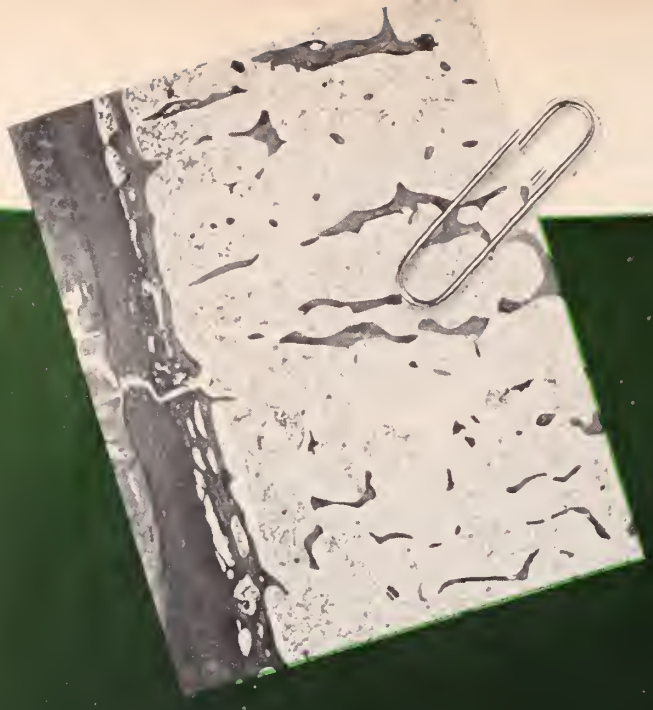
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Who supplied those lab facts? What's behind that report? The doctor who never looks deeper than the number on the report isn't bothered with this. But he should be! For his patient's sake! Accuracy surveys of some laboratories in the United States are astonishing:

63% of the hemoglobins were unsatisfactory,
42% of the glucose estimations were no good,
58% of the serum chlorides were unsatisfactory,
62% of the plasma protein determinations were off,
66% of the brucella agglutinations were wrong,
67% of the serum calciums were unsatisfactory,
57% of the blood urea nitrogens (BUN) were no good.

A closer study of these surveys shows more evidence of non-factual "facts."

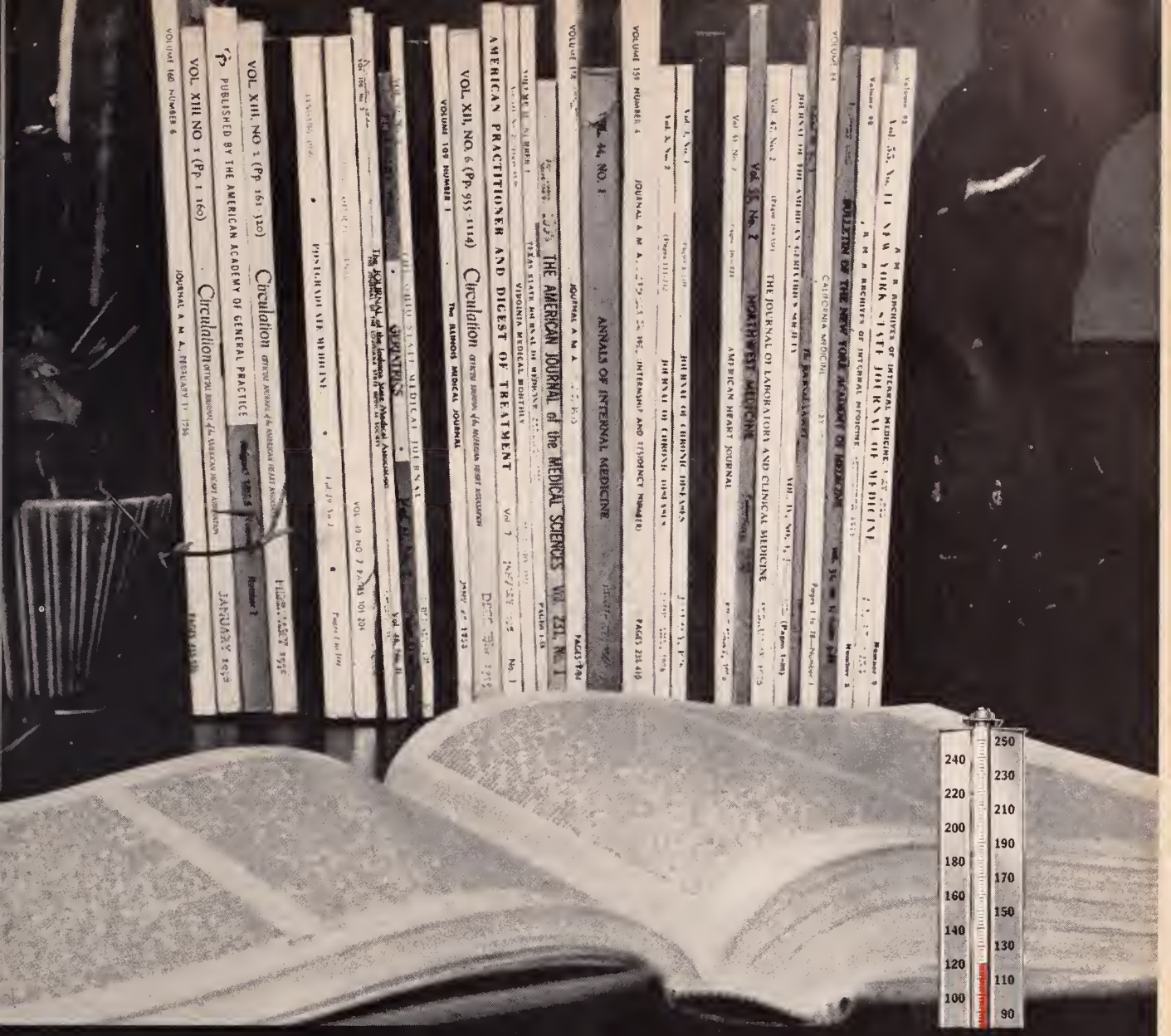
One calcium of	12.6 mgs%	was reported as	26.6 mgs%
One calcium of	6.6 mgs%	was reported as	17.7 mgs%
One BUN of	45.0 mgs%	was reported as	93.7 mgs%
Six BUNS of	45.0 mgs%	were reported as	5.0 mgs%
One glucose of	60.0 mgs%	was reported as	571.0 mgs%
One glucose of	375.0 mgs%	was reported as	70.0 mgs%

Other surveys are even more disheartening!

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1. Moser, M.: New York State J. Med. **55**:1999 (July 15) 1955. 2. Agrest, A., and Hoobler, S.W.: J.A.M.A. **157**:999 (March 19) 1955. 3. Smirk, F.H.: Am. J. Med. **17**:839 (Dec.) 1954. 4. Smirk, F.H., and McQueen, E.G.: J. Chron. Dis. **1**:516 (May) 1955. 5. Waldman, S., and Pelner, L.: Am. J. M. Sc. **231**:140 (Feb.) 1956.

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Erythromycin in the treatment of osteomyelitis*

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CASE SUMMARY

On 6/2/55, patient, male, age 28, fell on an old fracture and refractured the middle third of the right femur, superimposed on an old osteomyelitis.

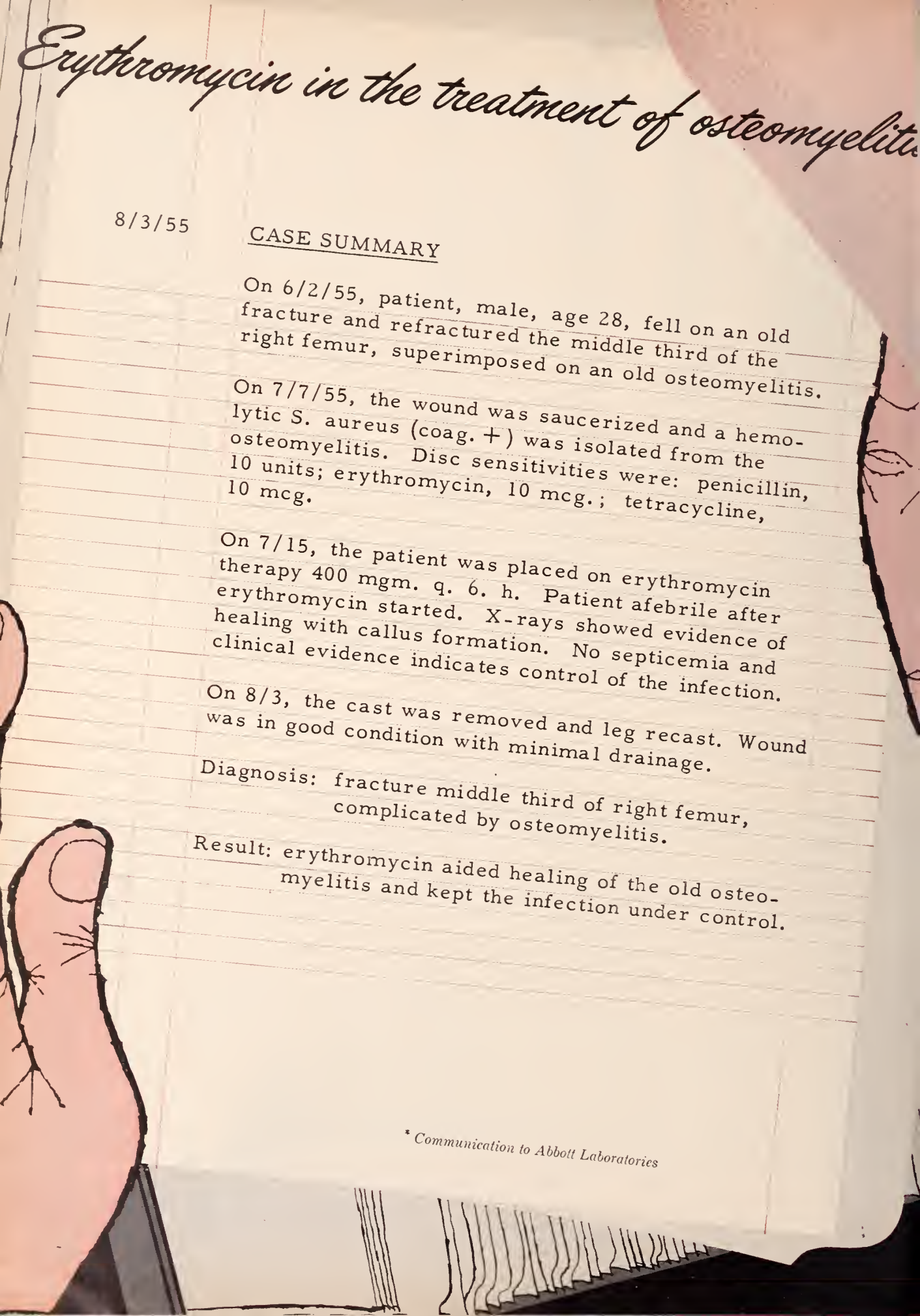
On 7/7/55, the wound was saucerized and a hemolytic S. aureus (coag. +) was isolated from the osteomyelitis. Disc sensitivities were: penicillin, 10 units; erythromycin, 10 mcg.; tetracycline, 10 mcg.

On 7/15, the patient was placed on erythromycin therapy 400 mgm. q. 6. h. Patient afebrile after erythromycin started. X-rays showed evidence of healing with callus formation. No septicemia and clinical evidence indicates control of the infection.

On 8/3, the cast was removed and leg recast. Wound was in good condition with minimal drainage.

Diagnosis: fracture middle third of right femur, complicated by osteomyelitis.

Result: erythromycin aided healing of the old osteomyelitis and kept the infection under control.



* *Communication to Abbott Laboratories*

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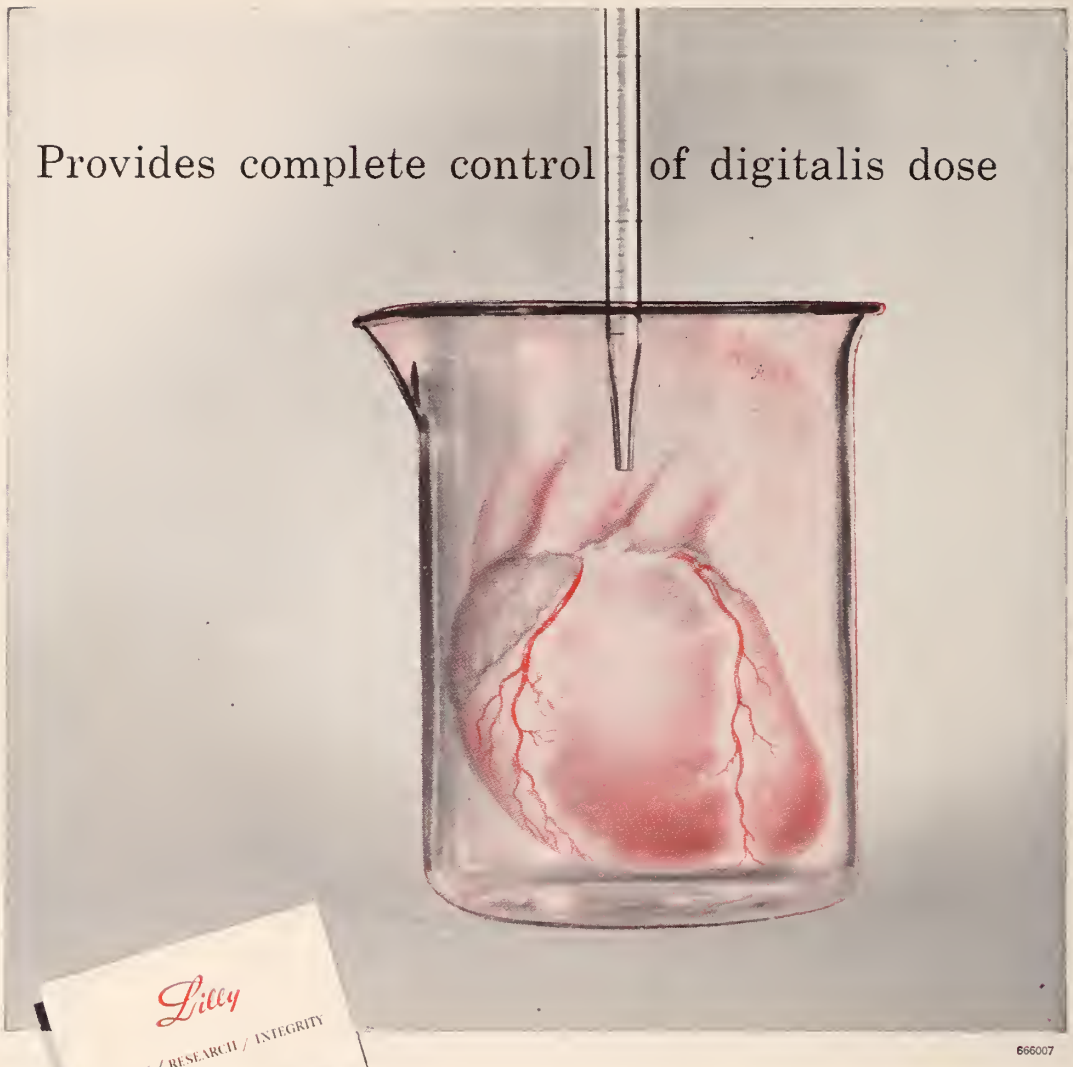
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SEPTEMBER, 1956

Published Monthly
1430 Tulane Avenue, New Orleans 12, La.

RECENT ADVANCES IN SERODIAGNOSTIC TESTS FOR SYPHILIS *

GEORGE H. HAUSER, M. D.
LUCILLE GODELFER, M. T. (ASCP) †
NEW ORLEANS

This year marks the fiftieth anniversary of the discovery by Wassermann and his associates [1] that the application of the phenomenon of complement fixation could be used in the laboratory diagnosis of syphilis. Through the years, great advances and changes in the original technic have taken place and newer methods and tests have been developed. A brief review of the immunology of syphilis and some of the significant changes that have been made in the older tests using lipoidal antigen will contribute to a better understanding of the newer tests using specific treponemal antigens.

Wassermann employed an aqueous extract of syphilitic fetal liver as antigen in his original test believing that a specific antigenic component was contained in it. Soon thereafter, it was found that any normal mammalian tissue could be used in preparation of antigen and that an alcoholic extract was far more sensitive than an aqueous one. It was also discovered that the addition of cholesterol further enhanced the sensitivity of the test. It became evident that the Wassermann reaction was not a specific antigen-antibody reaction.

The term reagin, "because it reacts", was arbitrarily assigned to the active substance present in syphilitic serum and spinal fluid that reacts with lipoidal antigen. Thus far, neither the exact chemical composition nor immunologic properties of reagin have been determined. It has been classified as an antibody because, like antibodies in general, it reacts, is always associated with the gamma globulin fraction of serum and has a molecular weight similar to that of antibodies.

The substance responsible for the reactivity of the alcoholic tissue extracts was isolated from beef heart in 1941 by Pangborn.[2] This substance called cardiolipin, was found to be a non-nitrogenous phospholipid. Subsequent publication of the method of isolation and purification [3] led to the beginning of a new era in the standard serological tests for syphilis hereafter referred to as STS. Cardiolipin alone is feebly antigenic but with purified lecithin and cholesterol in proper proportions produces satisfactory antigens for complement fixation and flocculation tests.

The cardiolipin antigens have several distinct advantages over the cruder lipoidal antigens. Because they are reproducible, they allow for more uniform results; the sensitivity level is equal to or slightly higher than that of tests using lipoidal antigens, and cardiolipin tests are definitely more specific, as shown by comparative

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† Division of Laboratories, Louisiana State Department of Health.

studies and evaluation surveys.

With the exception of Kahn, the authors of the Kline,[4] Kolmer,[5] Hinton[6] and Mazzini[7] standard STS have gradually modified the techniques of their tests to use cardiolipin antigen. Furthermore, new tests have been described, several of which are being used routinely by many laboratories in the United States and other countries. It is interesting to note that one of these, the VDRL Slide Test,[8] as shown by the report of the 1955 National Evaluation Survey, is used routinely by 41 state laboratories, experimentally by 2 and by official laboratories in Hawaii, Alaska, and Puerto Rico. It is also used by many hospital and private laboratories. For those who prefer a tube method, the VDRL tube test, using the same basic antigen gives equally good results. The tube test is also applicable for use with spinal fluids[10] which is of great advantage in laboratories which do not have facilities for performing complement fixation test.

Another test which is worthy of mention is the APHA Reference Microflocculation Test.[11] This was developed by a subcommittee of the American Public Health Association appointed to develop a microflocculation test for syphilis to be used as a reference test in setting the level of reactivity, thereby standardizing the serology of syphilis. A preliminary study by us[12] of a comparison of this test with other STS on a limited number of specimens showed the reactivity level to be slightly higher than that of the Kolmer complement fixation, VDRL and Kahn tests.

The cardiolipin tests are not sensitive enough to detect reagin in all stages of syphilitic infection, but they are generally considered satisfactory and of great help to the physician in the detection, treatment and control of syphilis. However, because of the large number of nonspecific reactions given by them in nonsyphilitic infections and presumably normal individuals their diagnostic significance has been questioned.

The detection and recognition of nonspecific reactions, referred to as "false-positive reaction" were known to the early workers, but since blood tests usually were made on persons who showed clinical or presumptive evidence of syphilis, these reactions were considered a rarity. With the institution of the so-called mass blood testing programs, such reactions assumed major importance. In mass testing programs thousands of persons with no history or clinical evidence of syphilis were found to be seropositive by one or more of the STS.

Physicians were often in a dilemma to decide if the positive reaction was due to syphilis or if it was produced by other conditions. Many patients on the results obtained by one or more of the STS were erroneously labelled syphilitic. They suffered untold embarrassment because of the social stigma attached to the disease; were denied employment, marriage license, entrance into armed services; were rejected as blood donors; given unnecessary treatment, and suffered considerable financial loss.

Detailed studies of the false-positive phenomenon have been made by many workers and much valuable information has been accumulated. Reaction with STS in patients with no clinical evidence of syphilis is now generally believed to be due to latent syphilis, either acquired or congenital, or what is now termed biologic false-positive reaction hereafter referred to as BFP.

Moore and Mohr[13] have divided the BFP reactions into two categories (1) "acute" and (2) "chronic" and have listed (Tables 1 and 2) some of the diseases and conditions known to give these reactions.

As noted, the acute BFP reactions are those which occur during or shortly after a large number of bacterial, spirochetal, plasmodial, rickettsial, protozoal, and viral infections. In this type, the amount of reagin in the blood of the patient is usually present in small amounts, is fluctuating, and disappears rapidly.

Chronic BFP reactions, on the other hand, are marked by the usual absence of a known precipitating factor and by the fact that reagin remains in the blood over

TABLE 1
ACUTE BIOLOGICALLY FALSE POSITIVE REACTIONS IN VARIOUS NONSYPHILITIC CONDITIONS
INFECTIONS

DISEASE	Approximate Incidence of BFP Reactions %
Bacterial	
Leprosy	60
Tuberculosis, advanced	3–5
Pneumonia, pneumococcal	2–5
Subacute bacterial endocarditis	5
Chancroid	5
Scarlatina	5
Spirochetal	
Leptospirosis	10
Relapsing fever	30
Rat-bite fever	20
Plasmodial	
Malaria	100
Rickettsial	
Typhus	20
Protozoal	
Trypanosomiasis	10
Viral	
Vaccinia	20
Pneumonia, "atypical"	20
Measles	5
Chickenpox	5
Lymphogranuloma venereum	20
Infectious hepatitis	10
Infectious mononucleosis	20
Common cold	? low

TABLE 2
CHRONIC BIOLOGICALLY FALSE POSITIVE REACTIONS IN NONINFECTIOUS DISEASES OR CONDITIONS

	Approximate Incidence of BFP Reactions %
Lupus erythematosus (disseminated or discoid)	20
Rheumatoid arthritis	5
Blood loss, repeated (as in multiple donations for transfusions)	? low
Pregnancy	? low

a period of many months or years, perhaps even a lifetime. Moore and Mohr[13] in a preliminary study of the background of patients giving chronic BFP reactions are convinced that the BFP reaction is not as innocuous as formerly believed and that many of the collagen diseases such as disseminated lupus erythematosus, periarteritis nodosa, rheumatoid arthritis, rheumatic fever, and sarcoid give chronic BFP reactions. Moore and Lutz[14] in a later study of the clinical etiological background in 148 chronic BFP reactors were able to verify a diagnosis of systemic lupus erythematosus in 10 of the patients, while 7 of the group developed rheumatoid arthritis and 45 showed probable collagen vascular diseases.

The need of a specific test to separate syphilitic infection from chronic BFP was apparent. Many tests, including the so-called "verification tests" were claimed to be capable of differentiating positive results in syphilis from those produced by BFP reactors. All of these tests used lipoidal antigens and depended on the nonspecific antibody reagin. They proved to be no more specific than the STS. It was obvious that a specific test was not possible until the development of an in vitro method of cultivating virulent *Treponema pallidum*.

In 1948, Nelson[15] was successful in developing a basal medium for isolating and sustaining the growth of the virulent Nichols strain of *Treponema pallidum* for a period of six to eight days. Such a medium led to the development by Nelson and Mayer[16] of the "treponemal immobilization or TPI test". This test procedure proved capable of detecting the specific antibody in sera from syphilitic animals and human beings. In addition, the antibody was proved to be distinct from reagin and, except for the related treponematoses (yaws, pinta, and bejel), was a specific test for detection of syphilitic infection.

The work of Nelson and Mayer was enthusiastically received both in the United States and abroad and soon many TPI laboratories were set up and studies were initiated to investigate the clinical significance of the test.

The technic of the test as described by the authors consisted in incubating a test mixture of treponemal suspensions, complement and patient's sera under anaerobic conditions at 37°C for fifteen to eighteen hours. The mixture was then examined by

darkfield microscopy. In mixtures containing syphilitic serum, the treponemes were immobilized while in normal serum the organism remained motile.

Using the author's technic, many were unable to obtain consistent results. One of the main difficulties encountered was the poor survival of the treponemes in the basal medium during the duration of the test. To overcome this difficulty several modifications [17-21] of the original basal medium have been made and adopted by different workers. Reproducibility of reactions [22, 23] and other factors were also found to give inconclusive results.

In spite of many obstacles encountered with the TPI test, many laboratories are now performing it satisfactorily. From numerous reports in the literature, the test has now been applied to thousands of serums and spinal fluids from both normal and syphilitic patients. Zellman [24] has made a study of the specificity of the TPI test and has used the results obtained by him and other workers in the United States, France, Scandinavia, and Germany to compile a detailed statistical analysis of the TPI test in nonsyphilitic and syphilitic infections. (Tables 3, 4, and 5)

Table 3 gives an analysis of the TPI test on 1,397 nonsyphilitic individuals. The treponemal immobilizing antibody is not present in the serum of normal individuals and only present in 0.3 per cent of individuals in nontreponemal diseases. This small percentage may be due to technical error. The high specificity of the test makes it an ideal test for the differentiation of syphilitic infection from BFP reactions.

Table 4 gives an analysis of the TPI test on 2,280 syphilitic individuals. The TPI antibody appears in the serum soon after infection and remains elevated during untreated syphilis. It does not tend to disappear spontaneously like reagin. For this reason, the test is valuable in making a diagnosis of latent syphilis, acquired or congenital, especially in cases when the reagin tests are negative.

If treatment is instituted early, the treponemal antibody disappears, but at a slower rate than reagin, making the reagin tests more satisfactory as a treatment control. If treatment is delayed beyond the secondary stage, the treponema antibody tends to remain in the blood indefinitely.

The inherent technical difficulties in the

TABLE 3
THE TREPONEMAL IMMOBILIZATION TEST IN NONSYPHILITIC INDIVIDUALS

Diagnostic Category	Number of Cases	TPI Results Positive	Doubtful	Negative	
Normal	389	0	0	389	100%
Diseases other than syphilis	615	1	1	613	99.7%
Nonsyphilitic *	393	2	0	391	99.5%
Total Nonsyphilitic	1397	3	1	1393	99.8%

* not classified.

TABLE 4
THE TREPONEMAL IMMOBILIZATION TEST IN SYPHILITIC INDIVIDUALS

Diagnostic Category of Syphilis	Number of Cases	TPI Results Positive	Doubtful	Negative	
Untreated primary	174	97	16	61	64.9%
Untreated secondary	591	553	15	23	96.0%
Untreated symptomatic	288	228	0	0	100%
Untreated congenital	74	68	1	5	93.0%
Treated primary	254	109	9	136	51.9%
Treated secondary	257	146	12	99	61.4%
Treated late symptomatic	574	549	3	22	96.1%
Treated congenital	128	111	3	14	89.0%
Total syphilitics	2280	1861	59	360	84.2%

TPI test soon gave impetus to search for a simpler test procedure in detecting the specific antibody. Nelson,[25] in 1952, was able to demonstrate the in vitro phagocytosis of *Treponema pallidum*. This led to the recognition of a specific reaction[26] between normal human erythrocytes and treponemes sensitized by antibody from syphilitic serum. The term immune adherence or TPIA was given to the phenomenon and a test procedure for its recognition developed.

Briefly, the technic of the test, as described by Nelson, consists in mixing a heat-killed suspension of treponemes with patient's serum. Human complement and a 50 per cent suspension of washed human blood cells are added to the mixture and after thirty minutes at 37°C this mixture is centrifuged and the treponemes in the supernatant counted by darkfield microscopy. Serums from syphilitic patients show a disappearance of treponemes in the supernatant, while no such disappearance occurs in nonsyphilitic serum.

The immune adherence (TPIA) test seems to have several distinct advantages over the TPI test. The test procedure is simpler and more rapid. An important feature is that heat-killed *Treponema pallida* are used as antigen. Antigens may now be purchased in limited amounts commercially.

Early attempts towards the development of a satisfactory agglutination test (TPA) for detecting agglutinins in response to *Treponema pallidum* were beset with difficulties in the preparation of antigen. The chief obstacle with early antigens was a tendency towards spontaneous agglutination of the organism. Several workers[27-30] have been successful in overcoming this difficulty by various methods and have described what they believe to be quite simple, sensitive, and specific agglutination tests. However, McLeod and Stokes[31] found that the TPA test detects at least two antibodies, one of which is reagin. They feel that "the agglutination technic as a specific diagnostic test for syphilis must await the preparation of more specific antigens".

Portnoy and Magnuson[32] have recently described the preparation of an antigen from virulent *Treponema pallidum* and its satisfactory use in a complement fixation test (TPCF). In the preparation of the antigen, the serologically active substance was extracted from *Treponema pallidum* by the use of desoxycholate solution. The Kolmer technique, using one-fifth volume to conserve antigen, was used in the test procedure.

A preliminary study of the incidence of TPCF antibody in human sera from 169 syphilitic cases and 383 sera from a general hospital admission indicate that the test shows a close correlation to TPI, suggesting a high specificity. The TPCF appears to be more sensitive than TPI in detecting primary and secondary syphilis but less sensitive than TPI in latent and late syphilis.

TPCF antigen in limited quantities is available from one biological house and another announces it is in the process of manufacture. Since many laboratories have facilities and personnel trained in complement fixation technique, it is anticipated that further evaluation will be made of the reliability and usefulness of the test as a diagnostic procedure. However, because of the limited supply and high cost of the antigen at the present time, it will only be used on selected and special cases.

TPCF antigen in limited amount has recently been obtained by us and 46 TPCF tests run in our laboratory, the results of which will be shown in the following tables.

Table 5 shows the results of TPCF and STS on 14 sera taken from hospital patients who gave no history or clinical evidence of syphilis. In this group of nonsyphilitic cases, the TPCF and VDRL slide test were nonreactive in all 14 cases, while the Kolmer complement fixation test showed reactive reactions in 2 of the 14 cases.

Table 6 shows results of tests in a group of 15 nonsyphilitic individuals suffering from various types of infections known to give acute BFP reactions. Of the group, 14 gave negative and one anticomplementary results with the TPCF, 4 were reactive in both the Kolmer complement fixa-

TABLE 5
RESULTS OF STS AND TPCF TESTS
(ROUTINE NONSYPHILITIC HOSPITAL CASES)

Serum Number	Kolmer CF	VDRL Titer	TPCF	Clinical Diagnosis Age	Color	Sex	Cases
12MX	—	—	—	17	W	F	Surg.
13M	—	—	—	27	W	F	OB
14M	—	—	—	25	W	F	OB
15M	—	—	—	20	W	F	OB
16M	—	—	—	46	W	M	Med.
17M	—	—	—	74	W	M	Heart
18M	—	—	—	36	W	F	Med.
19M	—	—	—	23	W	F	OB
20M	—	—	—	24	W	F	OB
21M	—	—	—	21	W	F	OB
22M	—	—	—	32	W	M	Surg.
23MX[2]	R(4)	—	—	28	W	F	Surg.
24M	—	—	—	52	W	M	Heart
26MX[2]	R(1)	—	—	57	W	F	Surg.

TABLE 6
RESULTS OF STS AND TPCF TESTS
(DISEASES OTHER THAN SYPHILIS)

Serum Number	STS Kolmer CF	STS VDRL Titer	TPCF	Clinical Diagnosis Age	Color	Sex	Case
9821	Anti	—	Anti	30	C	M	Arrested leprosy
9822	—	—	—	61	C	M	Lepromatous leprosy
1H	R(4)	4	—	28	W	M	Infectious mononucleosis
10071	—	—	—	36	C	F	Inactive T.B.—Preg.
10072	—	—	—	28	C	M	Arrested T.B.
10073	R(4)	4	—	37	C	F	Active T.B.
10074	—	—	—	28	C	F	Active T.B.
10075	—	—	—	34	C	F	Active T.B.
10076	—	—	—	38	C	M	Arrested T.B.
73938	—	—	—	16	W	M	Mumps encephalitis C.F. test—Pos.
9439	—	—	—	39	W	F)	1st. & 2nd. spec.
9438	—	—	—	39	W	F)	suspected Psittacosis
19021	R(3)	WR	—	28	W	M	Clinically RMSF C.F. (RMSF) pos. 1-1028
19034	R(3)	—	—	26	W	M	Clinically typhus fever, C.F. (typhus) Pos. 1-600
9956	R(4)	16	—	36	C	M	Lymphogranuloma venereum—Frei test—Pos.

tion and VDRL tests and 1 was reactive only in the Kolmer complement fixation test. The blood that was anticomplementary with the TPCF was also anticomplementary in the Kolmer test.

Table 7 shows results of tests on 5 presumably nonsyphilitic patients who gave nonreactive TPCF and reactive STS tests. These individuals were tentatively classified by their physicians as chronic BFP reactors as none gave history or clinical evidence of syphilis.

A brief abstract of case histories on these patients is as follows:

Patient 1 (Serum No. 7649)—C. L., a 47 year old, white woman was admitted to hospital in 1952, with diagnosis of pneumonia. During hospitalization there was no evidence of syphilitic infection by history or physical examination. The Kolmer, Kline and Kahn tests were reactive. Table 8 gives results of STS performed on this

TABLE 7
RESULTS OF STS AND TPCF TESTS
CLINICALLY NEGATIVE INDIVIDUALS
WITH PERSISTENT POSITIVE STS
BIOLOGICALLY FALSE POSITIVE REACTIONS

Serum Number	STS Kolmer	STS VDRL Titer	TPCF	Clinical Diagnosis Age	Color	Sex	
7649	R(3)	3	—	47	W	F	No history or CES
9887	R(4)	4	—	51	C	M	"
9678	R(4)	4	—	32	C	M	"
9904	R(2)	WR	—	61	C	M	"
9974	R(4)	—	—	35	W	M	"

TABLE 8
RESULTS OF STS AND TPCF TESTS ON
SERUM NO. 7649

Date	STS Kolmer CF	STS Kahn Titer	Kline	Date	STS Kolmer CF	STS VDRL Titer	TPCF
1-4-52[1]	Pos.	256	Pos.	7-13-54	Pos.	8	
2-13-52[2]	Pos.	128		11-9-54	Pos.	16	
5-3-52	Pos.	128		1-30-55	Pos.	16	
10-24-52	Pos.	128		12-9-55	Pos.	16	
12-11-52	Pos.	64		2-2-56	Pos.	3	—
2-24-53	Pos.	64					
10-7-53	Pos.	64					
1-6-54	Pos.	32					
4-13-54	Pos.	64					

1. Test performed at Baton Rouge General Hospital.
2. Test performed at our Lady of the Lake, Baton Rouge.
Other tests performed in Div. of Lab., La. State Dept. of Health.

patient in three different laboratories during the past four years. In spite of two courses of treatment, reagin was consistently detected in the blood serum. The physician sent in specimens of blood sera on February 1, 1956, requesting a TPI test as he was convinced that sera from this patient gave BFP reactions. As noted in the table, all STS were reactive but TPCF was nonreactive.

Patient 2 (9887)—B. M., a 51 year old, colored woman, gave a positive STS during routine examination at a New Orleans hospital in 1949, and was referred to the VD clinic for treatment. Patient denied history or previous treatment and showed no clinical evidence of syphilis. STS were reactive, but spinal fluid examination was nonreactive. She returned to clinic in 1953 and twice during 1955 at which time, STS were reactive and spinal fluid nonreactive. On February 1, 1956, the STS were reactive but TPCF nonreactive. Patient was classified as a BFP.

Patient 3 (9678)—A. W., a 32 year old, colored man, applied to Health Clinic for a STS as a prerequisite for course in nursing. The STS were reactive but TPCF was nonreactive. Patient stated that he had been inducted into Army in 1953, and while in service was rejected as blood donor because of reactive STS. Received treatment and discharged from the Army as seronegative. Patient gave no history or clinical evidence of disease.

Patient 4 (9904)—M. J., a 61 year old, colored male, during routine physical examination showed reactive STS. According to available records, patient was suspected of having syphilis on basis of reactive STS on discharge from Army in 1919. Patient showed no clinical evidence or history of syphilis and did not receive treatment. Tests on February 1, 1956, showed reactive STS and nonreactive TPCF.

Patient 5 (9974)—A. S., a 35 year old, white male, during routine physical checkup in January of 1956 showed reactive STS. Patient gave no history or clinical evidence of syphilis. Specimens of blood taken in March showed reactive Kolmer complement fixation test and nonreactive VDRL. A specimen (9974) collected in April showed a reactive reaction with the Kolmer complement fixation test, nonreactive reactions with the VDRL and TPCF. A subsequent repeat test showed similar findings.

Table 9 gives results of TPCF and STS on 12 known syphilitic individuals in varying stages of infection. All of these patients are under treatment. In these few cases, the TPCF appears to be as sensitive as STS in detecting syphilitic infections.

TABLE 9
RESULTS OF STS AND TPCF TESTS
(SYPHILITIC INDIVIDUALS)

Serum Number	Diagnostic Category	Kolmer CF	VDRL Titer	TPCF	Clinical History Age	Color	Sex
9994	Primary darkfield (+)	—	—	—	24	C	F
4584	Secondary	R(4)	8	R(4)	26	W	M
4824	Secondary	R(4)	4	R(4)	29	W	M
9640	Secondary	R(4)	32	R(4)	51	C	F
9612	Early latent	R(3)	2	R(1)	32	C	F
9613	Early latent	R(4)	—	R(1)	24	C	F
9609	Early latent	—	—	—	19	C	F
9608	Early latent	R(4)	32	R(3)	29	C	F
9607	Early latent	—	—	—	28	C	F
9611	Late latent	R(4)	32	R(4)	56	W	M
9610	Late latent	R(4)	WR	R(1)	27	C	F
9606	Late latent	R(4)	16	R(3)	31	C	M

Preliminary studies on the incidence of the TPCF antibody in sera from 46 individuals showed that the complement fixing antibody was present in 9 of 13 sera from syphilitic individuals which closely correlates the findings of the STS. No TPCF antibody was found with sera from 14 normal individuals or with 15 sera from patients with diseases other than syphilis or with sera from 5 patients whose history and physical examination indicated that their sera gave chronic BFP reactions.

It is evident that the emphasis in the past few years has been focused on the development of test procedures which are capable of differentiating BFP reactions from those in which reaction is due to specific infection with *Treponema pallidum*. Table 10 shows in outline, a summary of our present day concept of the theory of serologic reactions to syphilis, the types of antibodies produced, and the test procedures and types of antigens required to detect them.

By absorption tests, the TPI and TPIA antibodies have been shown to be separate from reagin. TPCF also appears to be separate from reagin. However, TPA test has been shown to detect two antibodies; one of which is reagin. The exact immunological relationship of TPI, TPIA and TPCF to each other has not been determined.

The newer test procedures which are capable of detecting the specific treponemal antibody have proved to be of great help

TABLE 10
THEORY OF SEROLOGIC REACTION TO SYPHILITIC INFECTION

Antibodies Produced	Test Procedures	Antigens to detect antibodies
1. Reagin	APHA Reference	Cardiolipin
	Hinton	"
	Kline	"
	Kolmer	"
	Mazzini	"
	VDRL	"
	Rein-Bossak	"
	Kahn	Lipoidal
2. TPI	Treponema Pallidum Immobilization	Live Treponema Pallidum
3. TPIA	Treponema Pallidum immune adherence	Dead Treponema Pallidum
4. TPA	Treponema Pallidum agglutination	Dead Treponema Pallidum
5. TPCF	Treponema Pallidum Complement fixation	Lipid fraction of Treponema Pallidum

to the clinician in solving certain inadequacies of the STS. However, these test procedures have not yet been evaluated on a sufficiently wide scale basis to determine their efficiency. An evaluation study of all treponemal and cardiolipin tests is being planned for the near future and it is hoped that this will prove as satisfactory as the evaluation study of STS conducted jointly by American Society of Clinical Pathologists and the United States Public Health Service.

Present indications are that the treponemal tests will not replace the STS but will be used in conjunction with them. Moreover, the identification of the chronic BFP phenomenon with other disease entities may lead to use of reagin tests for diagnosis of diseases other than syphilis.

Preliminary studies of the TPCF test in our laboratory show promising results. These studies will be continued on a larger scale as more antigen becomes available. Facilities and experienced personnel for performance of the Kolmer complement fixation test are already available, so that the addition of the TPCF test would not present a problem. If further study of the test substantiates our preliminary findings, it is our belief that the TPCF test will be a valuable specific test for syphilis, especially in studying BFP reactions and in differentiating them from syphilitic infection.

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INDUSTRIAL DERMATOSES *

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Since World War II the South has grown industrially more than any other section of our country. We are beginning and will continue to see more and more industrial dermatoses and must be able to recognize them as industrial problems to assist management in conquering these hazards of an increasing industralization of our Southland.

About two-thirds of all occupational diseases are industrial dermatoses. According to the U.S. Public Health Service, more than 1 per cent of employees engaged in various industries suffer sometime during the year with industrial dermatitis. An estimated 500,000 people are affected yearly.[1] A study of the compensation records of several states shows that the average loss of time per year for compensated cases of occupational dermatoses is about ten weeks, and the average compensation paid the employee is about $100, plus medical care. It is, therefore, estimated that the annual loss from occupational dermatoses in the United States is in excess of $100,000,000.[2]

The presence of other cutaneous diseases predisposes to industrial dermatitis. Employers in industry should be advised against employing these individuals for they are more likely to become sensitized to any of a number of offending agents, or suffer exacerbations of their dermatosis. The actual causes of industrial dermatoses are many: primary irritants (non-sensitizers) cause approximately 80 per cent of the cases; sensitizers cause approximately 20 per cent of the cases.[1]

Since industrial dermatoses is such a large field we have selected the four most commonly encountered ones, namely, chrome dermatitis, dermatoses due to rubber, dermatitis due to shoes, and chloracne. The various facts and fallacies observed in these industrial dermatoses are presented to familiarize the practitioner with the types of industrial dermatoses one is likely to encounter in an industrial area.

CHROME DERMATITIS

Chrome dermatitis comprises approximately 10 per cent of all the cases of industrial dermatitis.[2] The chrome compounds (chromic acid, chromates and bichromates) are exceedingly active chemically, and are powerful skin irritants and corrosives. Chief offenders are the alkaline chromates (potassium, sodium and ammonium bichromates). Ulceration of the nasal septum and of the skin is of frequent occurrence in the manufacture of chromates. In factories where chromates are manufactured perforations of the nasal septum, and chrome ulcers on the hands and arms are exceedingly common. According to the resistance of the individual the chrome compounds produce dermatitis of varying severity, affecting primarily the skin and mucous membranes, and may also cause systemic poisoning if absorbed



Figure 1. Dermatitis on ink plant worker—possibly due to potassium or sodium chromate used in cleaning the machine.

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through the skin in adequate amounts.[2] The ulcers usually develop when the chrome compounds are deposited on an abrasion.

The extensive uses of chrome compounds in industry are many and varied. They are used in the dye industry, the preparing of alloys, manufacture of inks, chrome tanning, the manufacture of chromium pigments and paints as a mordant, wool dyeing, printing textiles, match making, photography lithography, photoengraving, blue-print developing, chrome plating, synthetic dye manufacture, cement industry, and in the rubber and railroad industries.

Chromium compounds affect the tissue proteins, forming with them chemical compounds, as in the tanning of hides.[6] In strong enough concentrations they corrode the skin and mucous membranes. Strong solutions not concentrated enough to corrode the skin may produce a toxic dermatitis, but in still weaker concentration the chromates may sensitize the skin and cause an allergic dermatitis.[6] As regards frequency, only turpentine, primrose, wood tar and mercury salts are definitely able to cause sensitization oftener. In 1000 cases of occupational dermatitis in the state of Ohio, 60 had chrome ulcers and 31 had chrome dermatitis.[6]

Hall states that sensitivity develops only after a relatively long period of exposure, and once developed, tends to increase rather than decrease in severity. Due to the long period of exposure necessary for sensitization, pre-employment patch testing to reduce the incidence of dermatitis would be worthless.[13]

Chrome Ulcer and Perforated Septum: Chrome ulcers are apparently due to a toxic, necrotizing action of the chromate ion on living tissue, independent of its sensitizing properties. The ulcers are common in the tanning, electroplating, and chromium chemical producing industries. They form when the chemical is introduced into a break in the skin, and are most common on the hands and arms. The ulcers are usually punched out lesions, with raised, indurated borders, and tend to take the shape of the preceding break in the skin. Minimal inflammation is present, and the ulcers are usually painless, healing with depressed atrophic scars as a rule.

Perforation of the nasal septum occurs only in shops in which there are mists or dusts containing chromate. A painless ulcer appears on the cartilaginous portion of the nasal septum, and in several weeks a perforation may occur. The lesion is usually asymptomatic.

Malignant degeneration is not known to occur in either chrome ulcers or perforations of the septum.

Chrome Dermatitis: The incidence of chrome dermatitis is not known, but is thought to be between 1 and 10 per thousand per year, the incidence varying with the type of exposure and the turnover of employees.[18]

Only the hexavalent chromate ion is a sensitizer; metallic chromium or the trivalent compounds are not sensitizing substances.[18] Chromate dermatitis varies from an acute, vesicular weeping eruption, to dry, erythematous, slightly elevated squamous plaques. The most common sites of occurrence are the dorsum of the hands, wrists, and forearms. Chromate dermatitis differs usually from ordinary contact dermatitis in its patch distribution and longer course.

As regards cement dermatitis, it was formerly thought that the dermatitis was due to primary irritation due to the alkaline, abrasive, and hygroscopic properties of cement. It is now thought that dermatitis in cement finishers, fabricators and masons may be due to a specifically acquired hypersensitivity to water-soluble chromate compounds in cement.[5, 16, 17] American cements contain 0.00004 to 0.002 per cent water soluble potassium chromate. Water soluble chromium represents only a small portion of the total chromium in the original cement powder, and hexavalent chromium accounts for over one-half of the water soluble chromium.[5] It is well known that moistened cement may exert a primary irritant action on skin, but various authors[5, 17] have shown that allergic chromate hypersensitivity may initiate and maintain cement dermatitis, as

evidenced by positive patch testing to hexavalent chromium. Soluble hexavalent chromium is apparently present in all cements to a varying degree.

It is also stated that cement artisans are exposed to higher hexavalent chromium levels than is indicated by analysis of cement washings, for as moisture evaporates from cement slurries in contact with the skin, the percentage of hexavalent chromium rises.[5]

The railroad industry is faced with a serious problem in regard to chromate dermatitis. Prior to the advent of the Diesel type of locomotive there was only an occasional case of occupational dermatitis encountered among workers in railroad machine shops. Schwartz [11] stated that the principal dermatologic hazards in the railroad machine shops that he investigated were petroleum and chlorinated hydrocarbon solvents and alkalis, but the use of Diesel locomotives had added Diesel fuel oil, Diesel crankcase oil and coolants containing chromates to the skin hazards.

Sodium bichromate, an autioxidant used in Diesel locomotive radiator fluid, is the most common offending agent.[3] The Diesel locomotive radiator fluid in question is prepared from a powder with the following formula: 66 per cent sodium bichromate, 24 per cent soda ash, 5 per cent disodium phosphate, and 5 per cent sodium silicate.[3] It is used in diesel railroad locomotives and in some stationary units to prevent corrosion in the cooling system. The powder is dissolved in water in an open pail, producing a solution of about 6 per cent sodium bichromate. When this concentrated solution is poured into the radiator of the locomotive, and the radiator is filled with water to its capacity of approximately 210 gallons, a final concentration in the radiator fluid of about 0.08 per cent bichromate solution is produced.

It is difficult to fill and drain the radiator without contaminatng the adjacent parts of the locomotive and splashing the solution on those handling it. Any leakage in the cooling system pump, radiator, or engine jacket will soil the floor and other parts of the locomotive. The employees who prepare and transfer the concentrated power and solutions usually receive the heaviest exposure to the chromate compounds but anyone engaged in cleaning or repairing the locomotive, motors, or the shop area, is exposed to lesser concentrations.

The following measures are suggested as aids in reducing the hazard of contact with the chromatic salts in railroad workers.[3] "(1) The recommended mechanical protective devices—such as rubber gloves, rubber boots, waterproof aprons and sleeves, and protective creams—should be used by those handling chromate compounds in the dry state or the various solutions. They should be particularly careful to avoid spilling this material, thereby contaminating the locomotives and the general shop area with the chromate compound. (2) Those persons working on diesel locomotives who have been found sensitive to chromate should immediately be transferred to other work so that further contact with the substance can be entirely eliminated. (3) Leaks in the radiator system should be repaired promptly by those properly protected, and the contaminated areas thoroughly washed. All parts of the radiator and motor exposed to the chemical should be thoroughly washed to remove any remaining chromate before these parts are transferred into the shop area. (4) Some substance without such sensitizing properties should, if possible, be substituted for the sodium-bichromate solution in the radiator fluid. Failing this, the equipment should be redesigned to effect a minimal amount of spilling of the solution both in filling and in draining the diesel locomotive radiators."

As regards treatment of chrome dermatitis, in its stages varying from the acute eczematous eruption to the chronic stage, there is no specific treatment. Treatment is primarily symptomatic, depending on the acuteness and chronicity. Guy [4] states that the unusual feature of chromate dermatitis is its chronicity and recalcitrance to treatment.

The best approach is prophylaxis, which consists of the folowing measures:

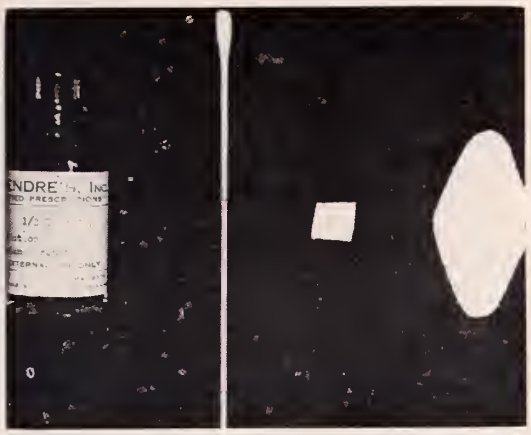


Figure 2. Material used in performing a patch test—

a—Material to be tested diluted to its proper test strength.

b—Cotton applicators used to dampen the skin and the small square of gauze.

c—An elastoplast with a central ring of cellophane (the cellophane does not show in the photograph) which prevents evaporation of the test material.

1. Wearing of long rubber gloves.
2. Use of protective ointments.
3. The use of 5 per cent sodium bisulphite solution for cleansing the hands. This solution reduces the chromium of bichromates with a valence of 6 to that with a valence of 3, the compounds which are less injurious to the skin.

DERMATOSES IN THE RUBBER INDUSTRY

The rubber industry is confronted by relatively few cases of dermatoses. Sensitivity rarely occurs due to crude dry rubber or synethetics,[7] the dermatoses being produced usually by the various complex chemical additives which are ingredients of rubber compounds. Through patch testing it has been proven that antioxidants added to rubber for the purpose of improving its aging properties is the most common cause of leucoderma due to rubber compounds.[23] There are a number of additives which must be added to produce a rubber product. Sulphur must be added to produce vulcanization; accelerators are used as catalysists to speed the vulcanization process; activators are added as a trigger for the accelerator; antioxidants are used to slow the aging of rubber; foaming agents are added to make foam rubber.[7] Synthetic rubber requires the same compounding and additives as latex and crude rubber.

Contact dermatitis due to rubber is more common among workers in industry than among users of finished products, because the workers are confronted with many before vulcanization. Most of the compounds are non-irritating after vulcanization, or "curing", has taken place.



Figure 3. Contact dermatitis due to rubber. (This patient was a file clerk who wore rubber finger stalls.)

"The vulcanization of rubber comprises a chemical reaction by which the physical properties are changed to increase its strength and elasticity and to improve its resistance to changes in temperature." [19] Numerous synthetic organic substances are added to the crude compound to promote vulcanization and/or retard atmospheric oxidation or the effects of oxidation, these compounds being referred to as accelerators, activators and antioxidants. Among the more commonly used accelerators are piperidinium cyclopentamethylene dithiocarbarnate; hexamethylene-tetramine; various members of the carbon disulfide class, especially the carbon disulfide aliphatic amine products; the various guanidines, especially diphenyl-guanidine; and mercaptobenzothiazole and its derivatives.

Activators are compounds which activate acceleration of the vulcanization of rubber. The metallic oxides, especially zinc oxide, are the most commonly used compounds in this group.

Antioxidants are substances which when added to rubber in small proportions retard atmospheric oxidation or the effects

of oxidation. Of the various antioxidants, compounds using the trade name "agerite" produce dermatoses most frequently. "Agerite" hipar and "agerite" powder contain phenyl-B-naphthaylamine, which is a powerful skin irritant.[19] "Albasan" contains



Figure 4. Leukoderma due to rubber.

sufficient B-naphthol to cause irritation of skin, kidneys and eyes.

Of the accelerators, hexamethylenetetramine is the most potent skin sensitizer.

Numerous other accelerators, activators and antioxidants are listed by the National Safety Council as "toxic or irritant."[19]

Plasticizers are frequently added to synthetic resins to increase their flexibility and extensibility. Most of the plasticizers are compounds with a high boiling point, usually above 200 degrees C.[20] "For this reason industrial exposure to the vapors of these compounds is observed only near the areas of vaporization." Mallette and Von Haam[20] studied the effects of 25 commonly used plasticizers in industry. They found that 17 of these compounds proved to be slight or moderate skin irritants; 3 proved to be severe skin irritants; and 5 proved to be moderate sensitizers. Five plasticizers showed no irritating or sensitizing effect.

Various finished rubber products have been known to produce sensitivity, some of the more common being listed below:[22] rubber sponges used for application of cosmetics, rubber gloves (one of the most obvious and best known examples of rubber sensitivity) condomes, rubber bands, rubber dental plates, kneeling pads, rubber panties, eyelash curlers, rubber headrests, rubber bathing cap, rubber dental dams, and rubber in predominantly nonrubber garments, such as elastic on shoes, shorts and hair nets; garters, girdles, brassieres and dress shields. Any of these articles may produce leucoderma.[22]

With the elimination of the additives which are commonly known to produce sensitivity, fewer cases of dermatoses in the rubber industry are seen. Agerite alba (monobenzyl ether of hydroquinone), formerly a widely used antioxidant and very common sensitizer, is now used only by small companies making a single product. The commonest group of dermatoses which are encountered in the rubber industry are eczematizations of the hands, wrists and forearms.[7, 2] The lesions may become secondarily infected, producing generalized infectious eczematoid dermatitis.

With the more modernly equipped factories, safety devices and knowledge of safety recommendations have reduced dermatoses in the rubber industry to a less imposing hazard. Rubber companies have made great strides in eliminating irritating substances, or, where this is not possible, protected the worker from these compounds.

DERMATITIS DUE TO SHOES

It is interesting to note that definite change in the impression of the causative factor involved in dermatitis venanata due to shoes, as so clearly summarized by Shatin and Reisch in their recent article.[9] Previously, numerous parts of shoes have been incriminated, including the various shoe dyes used, especially aniline; shoe leather; the various substances used in the tanning, finishing and dyeing of leather; various resins, fillers, plastics and rubber adhesives. Gaul and Underwood,[22] and Blank and Miller[23] have emphasized more recently the importance of rubber adhesives in shoes as the causative factor in a great number of cases of shoe leather dermatitis. Shatin and Reisch[9] emphasized that most of their large series of cases of contact dermatitis due to shoes were examples of allergic contact dermatitis due to rubber, and that antioxidants and accelerators are actually the sensitizers in rubber,

as noted by numerous authors.[2, 7, 19-21]

At the Veterans Administration Hospital in Bronx, N. Y., for the five-year period 1947-1951, 1 out of every 10 patients hospitalized because of a dermatologic condition of the feet was diagnosed as contact dermatitis due to shoes.[9]

Most observers have noted a very definite and characteristic clinical picture in the majority of cases of shoe dermatitis, the dermatitis usually being of the anterodorsal portion of the foot. The dermatitis is characterized initially as a mild erythema, gradually progressing to an acute eczematoid process, and may produce autosensitization, involving other parts of the body. Usually, there is an intense pruritis. To the untrained eye the picture may resemble a dermatophytosis; also the two conditions may coexist. Patch tests to various parts of the shoes are very confusing, there being no definite pattern of sensitivity, and also, a certain number of patients have negative reactions to patch tests, even though there is no clinical doubt that the patient has a dermatitis due to



Figure 5. Dermatitis venenata due to shoe lining (rubber).

sensitivity to materials present in the shoes.[9]

Usually the appearance of the dermatitis, exacerbations coinciding with the wearing of shoes, and remissions apparently induced by removing the shoes establishes the diagnosis. There may be no history of the purchase of new shoes, and also there may be no correlation between the length of time the shoes are worn and the appearance of the dermatitis. In some cases the dermatitis can appear weeks or months after the purchase of new shoes. Usually the clinical picture is characteristic, both as to the site of onset and its evolution.

Rubber cements are found in various parts of shoes, and rubber is always present in the mid-sole.[9, 21-23] Shatin and Reisch state that these agents are rarely the cause of the dermatitis as compared with the thermoplastic box toe present in most shoes. These authors found that there was a high incidence of their patients (18 out of 31) with shoe leather dermatitis in which the causative agent could be traced to the thermoplastic box toe, "when the dermatitis originates or is localized on the back of the toes," and that these were examples of allergic contact dermatitis due to rubber.[9] The authors state that these patients are easily cured by the use of shoes with a flannel box toe. They routinely test their patients suspected of having a contact dermatitis due to shoes with thermoplastic material and a group of rubbers, and if any of these are positive, the thermoplastic box toe must be eliminated, both as a causative and prophylactic measure, and either the rubber midsole or heel pad if the starting point of the dermatitis appears to incriminate either of these. If the reactions to these stock solutions are negative, the authors find it necessary to investigate the patient's own shoes; they state that this procedure is more difficult and less productive of results.

It has been shown that shoes worn by a large number of patients with foot eruptions are usually moisture repellant.[24] "Shoes that keep environmental water out also keep in psychic and thermal sweat. The foot portion of socks and hose should be made of absorbent fibers, readily permitting the transference away from the feet of psychic and thermal sweat. Shoe

materials should allow the rapid passage of water vapor so that evaporation from the feet can play its important role in the regulation of foot and body temperature".[24]

Variation in the amount of pedal sweat, shoes becoming wet in rain and snow, variable rate of wear of different parts of shoes because of the anatomical structure of the foot, frequent changing of shoes, and individual sensitivity all help explain why one patient develops a dermatitis of the dorsum of the feet, another on the soles, and a third on the heels.

CHLORACNE

Chloracne is a condition produced by chlorinated hydrocarbons, more commonly, the chlornaphthalenes, chlordiphenyls and chlordiphenyloxides. Acneform cysts and comedones may be formed on the face, back of the ears, shoulders, abdomen, about the navel, groin and genitalia, and may be seen in persons engaged in the manufacture of chemicals for insulating wires, in electricians using flameproof wires, and machinists, oil field workers, oil refiners and paraffin pressmen exposed to oils containing chlorinated hydrocarbons.



Figure 6. Chloracne.

The lesions occur when the chemicals become lodged in the pores of the skin, plugging the openings and causing retention of the secretions of the glands; the oils also produce stimulation of the formation of keratin; as this action continues comedones and cysts are formed.

The largest number of workers with chloracne are those exposed to the insoluble cutting oils. These oils are used on most machine tools, and basically are composed mostly of refined petroleum oil, with high amounts of sulphur and chlorine added. Chlorinated hydrocarbons are either formed in the oil or are added to it. When these oils are used on heavy cutting or gear grinding operations a mist of oil is seen around the machines and falls on the workers. Chloracne lesions form anywhere on the body where the oil soaked clothing touches the skin. These type of cutting oils are used primarily for their lubricating capacity, aiding the tools in the cutting operation in machine shops.

The soluble oils cause chloracne less frequently. These oils are used primarily as cooling agents, and only secondarily for their lubricating qualities.



Figure 7. Dermatitis due to cutting oils.

Chloracne from synthetic waxes produces lesions with the same characteristics as those due to chlorinated cutting oils. The principal synthetic waxes produced in the U.S. are the chlornaphthalene and the chlordiphenyl containing compounds. They are used as electric insulators on condensors and wires, and in transformers, paints, varnishes and lacquers.

The following measures of prevention of chloracne among these workers are advised by Schwartz:[2]

1. The manufacture of the chlorinated hydrocarbons and the coating of wires and condensers with insulating materials containing the chlorinated hydrocarbons should be done in totally enclosed processes so that the fumes of the insulating substances and of the solvents, if any are used, do not come in contact with the workers.
2. Workers should be provided with

clean coveralls and underclothes daily. These should be laundered at the plant and cleaned in such a way that no chlorinated hydrocarbons remain on them.

3. Shower baths after work should be compulsory. Suitable cleansers should be provided to efficiently remove the insulators from the skin. Sulphonated castor oil is good for this purpose.

4. These measures should apply also to electricians and others who work with wire and condensers insulated with the chlorinated hydrocarbons.

5. Impervious sleeves and aprons should be provided.

Chlorine gas itself and inorganic compounds of chlorine do not cause acne lesions. Naphthalene, diphenyl, benzol or phenol do not cause chloracne unless combined with chlorine, although these solvents can injure the skin by direct contact and can cause systemic poisoning when absorbed.

The treatment of chloracne in general consists of expression of comedones, evacuation of abscesses and cysts, and the frequent use of skin cleansers. X-ray should be used only in special cases.

COMMENT AND CONCLUSIONS

Those without dermatologic experience are inclined to consider any dermatologic disability as quite minor in comparison with internal disease or loss of limb. This undoubtedly has contributed to the relative lack of consideration given even the disabling dermatoses.

Most skin patients are not very ill, yet their prolonged disability may lead to intense boredom. It is for this reason that a proper attitude is essential to maintain the patient's original high morale. He tends to worry about his slow recovery, the persistent pruritus, his own inactivity, his dwindling bank account, and finally he becomes fearful that he may never again be able to compete equally with his fellow workers.

Future needs for managing dermatoligic rehabilitation more successfully must include expert dermatologic care, a physically sound and protected worker, a modern and clean physical plant, a close liaison between the employer, employee, and physician, an enlightened management, more adequate inspection of industrial hazards, more extensive compensation and rehabilitation measures, and sounder and more complete insurance protection. Every effort should be directed toward the provision of means for relieving the patient of worry about his future security.[27]

We have described only a few of the industrial problems that are beginning to appear in the South as we become more industrialized. No doubt we will see more and more industrial dermatoses. We should be able to recognize these cases as such and to separate them from other dermatoses that simulate industrial diseases of the skin. The physician should visit the plant and examine at first hand the conditions under which the employees work. Only in this way can he do the best possible job to assist the worker and the employer in correcting the problems of industrial dermatoses.

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HEMATURIA *

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Hematuria is defined as the discharge of bloody urine. Blood may be microscopic in quantity, or the urine may be grossly bloody. It may be bright red blood or it may be dark in color. It may be associated with pain or it may be painless. Hematuria is not a disease but is a symptom of an abnormality of the human body. The bleeding may arise primarily from the genitourinary apparatus or it may arise from some condition or organ removed from the genitourinary apparatus. Since hematuria is a symptom and not a disease, it behoves us as clinicians to delve deeply enough into the case to determine the cause and source of the bleeding so that we may better our patient's chance of being cured. Some of the most serious conditions encountered in the practice of medicine will give the presenting symptom of hematuria and the hematuria may be transitory, thus giving the patient, and sometimes the physician, a feeling of false security concerning the welfare of the patient.

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ETIOLOGY

Hematuria may be secondary to a systemic disease such as scarlet fever. Most cases of acute nephritis are thought to be secondary to some acute infection such as an acute upper respiratory disease. Within recent years we are appreciating more the fact that allergies to foods, drugs, and contacts cause upsets in the urinary apparatus, and among the symptoms present may be hematuria.

Hematuria may arise from the kidney and be caused by such things as pyelonephritis, polycystic kidney disease, calculi, tumors, hydronephrosis, nephroptosis or tuberculosis. When a complete search is made and no cause is found for renal bleeding that case is then sometimes classified as essential hematuria. Renal hematuria may result from trauma, such as a kidney contusion which might be so mild as to cause microscopic hematuria of short duration, whereas the trauma may be so severe that the kidney may be ruptured causing gross hematuria and severe shock, or even death.

The ureters are not free of the stigma of the source of hematuria, the most likely causes being calculi, tumors, tuberculosis and trauma. The possibility of acute appendicitis must be thought of with pain and hematuria arising from the right side of the abdomen.

Hematuria arising from the bladder may result from an acute cystitis with the typical terminal hematuria associated with tenesmus or straining, or may be painless, gross hematuria resulting from a tumor of the bladder. Stones in the bladder, as well as interstitial cystitis, tuberculous cystitis or some type of allergy can give bladder bleeding. Trauma, such as fractures of the bony pelvis, may produce injury to the bladder and cause hematuria.

The prostate gland, such as a severe acute prostatitis, or an obstruction caused by hyperplasia or carcinoma of the prostate gland can give hematuria.

DIAGNOSIS AND TREATMENT

The crux of the practice of medicine is predicated on a complete history and physical examination and if the clinician is not

detective enough to make a correct diagnosis, he then should resort to laboratory procedures or consultation. No physical examination is complete without having the urine examined for specific gravity, and the presence or absence of sugar, albumin, red blood cells and pus cells. The last one-half of the voided urine in the male should be used for such an examination whereas all females, regardless of age, should be catheterized to obtain a specimen of urine for examination. It is physically impossible for a female to void an uncontaminated specimen of urine.

Hematuria caused by systemic diseases can usually be determined after a history and physical examination have been made, an example being a youngster who has recently been sick with tonsillitis or some other type infection, followed by swelling of the body and voiding a murky, bloody urine associated with albuminuria. This is your case of Bright's disease, and should be treated as such. Sometimes the sequelae of an infectious process will give the patient chills and fever, pain over the renal area and the presence of pus and blood in the urine. Such are the findings one would expect in a case of acute pyelonephritis. This case should be treated with the appropriate urinary antiseptic until the urine is sterile.

One has to resort to cystoscopy and pyelograms in properly diagnosing hematuria caused by hydronephrosis, nephroptosis or polycystic kidney disease. Hydronephrosis is thought to be caused by obstruction which may be extrinsic in nature, such as an aberrant blood vessel close to the uretero-pelvic junction or adhesions in that region. The obstruction may be intrinsic, such as a stricture of the ureter at the uretero-pelvic junction, thus interferring with the flow of urine from the renal pelvis into the ureter. Many of these kidneys can be saved by an operation in which the obstruction is removed before too much permanent renal damage has been done due to back pressure changes. A nephrectomy should be performed in a kidney which has too much permanent damage, if the opposite kidney is in good condition.

Calculi of the urinary tract is one of our oldest known diseases and is certainly one of the most interesting phases of urology. Joly's book on stones reads like a novel and is filled with knowledge concerning the perplexing problem of calculi. It is a historical fact that some of the mummies found in the excavations of the ancient tombs of Egypt show that renal calculi were present in that area. It is also a historical fact that there were professionals who toured Europe in the twelfth to the fourteenth centuries who "cut for stones". These early surgeons were barbers by trade and operated by a perineal route to remove bladder stones. Stones are more prevalent in certain races and also in certain parts of the world. C. H. Voss has related some of his experience of removing large bladder calculi from children while working as a Medical Missionary in China. We know that the Negro race has but little trouble with urinary calculi. There are many theories propounded regarding the cause of urinary calculi but no one theory proves correct regarding this perplexing problem. Arthur Butt has done some interesting work with hyaluronidase in the prevention of certain types of stones and the late literature mentions the benefit of salicylates in the prevention of stone formation. The whole story is interesting and we look to the future with hope in the handling of stone cases.

A typical case of renal or ureteral colic is the sudden onset of severe pain in the region of the kidney or along the course of the ureter radiating towards the external genitalia. The patient is "on the move" with stone colic; whereas if the pain is from a ruptured abdominal organ the patient lies quietly in flexion trying to splint the peritoneum with the abdominal muscles. Both will give nausea and vomiting and a leucocytosis. The stone colic will often give hematuria, usually microscopic in character. We must resort to pyelography to help in the diagnosis of renal and ureteral calculi. Usually one can palliate temporarily in the case of a small stone not producing urinary obstruction; and at times if the small stone is in the lower one-

third of the ureter it might be extracted with cystoscopic manipulation of catheters. Large stones must be removed surgically and should be done when the urinary apparatus has been completely evaluated. Many nephrectomies could be prevented in stone cases if the diagnosis were made early. Most large bladder stones are secondary to vesical neck obstruction and these cases are usually associated with a marked degree of pyuria and some hematuria. The urinary stream may cut off suddenly when the large stone engages in the urethral opening. Diagnosis is made by cystoscopic visualization and proper x-ray study. The treatment is to surgically remove the vesical neck obstruction as well as the stones. In some cases the choice approach is transurethrally, whereas in other cases the choice approach is open surgery by the suprapubic route.

The triad of symptoms of pain, swelling and hematuria are the cardinal symptoms of tumors of the upper urinary tract. When one considers that the vast majority of these tumors are malignant and that any two of the symptoms of pain, swelling and hematuria usually are found after metastasis has occurred, the seriousness of this condition cannot be stressed too strongly.

Wilms's tumor, found in the first decade of life, is a highly malignant tumor, grows very rapidly and is about 95 per cent fatal within one year after the diagnosis is made. Often the mother notices swelling in the flank while bathing the child, but pyelograms will show a filling defect in the renal pelvis caused by encroachment of the growth into the pelvis which growth also causes hematuria. The treatment is x-ray therapy in order to reduce the growth, followed by nephrectomy, and following the surgery the maximum dosage of x-ray therapy.

About 80 per cent of all cortical tumors of the kidney are hypernephromata which is an adenocarcinoma, and they usually occur more often in men between 45 and 65 years of age. It is an encapsulated growth but when the growth breaks through the wall of the pelvis it will produce hematuria and again the pyelogram will have a filling defect in the pelvis of the kidney. These tumors are resistant to x-ray therapy. The treatment is nephrectomy.

Papillary tumors of the renal pelvis or the ureter will give hematuria and also a filling defect on pyelographic study. The treatment is nephrectomy and ureterectomy, the ureterectomy being necessary because of the fact that the papillomatous growth has a tendency to seed itself down the ureter and into the bladder.

Acute cystitis is a very common urinary complaint, occurring most commonly in the female. Some of the typical symptoms are urinary frequency, nocturia, urgency, burning, tenesmus and often hematuria. The hematuria usually occurs at the end of the urinary act and is called terminal hematuria. These cases have no fever. Catheterized urinalysis will reveal red blood cells but will also present pus cells and organisms. The treatment is symptomatic care plus the proper urinary antiseptic. The treatment should be continued until the urine is sterile.

Unfortunately, hematuria from the bladder does not end with cystitis, stones, trauma and interstitial cystitis. When one considers that the cardinal symptom of bladder tumors is painless, gross hematuria in two-thirds of such cases, and when one considers that all bladder tumors are malignant or potentially malignant, and that the hematuria stops in three-fourths of the cases within one to three days whether or not treatment is given, it is reasonable to presume how inadequate treatment of such a case is until a diagnosis is made. Do not give pink pills or blue tablets and ask the patient to return if the hematuria persists. The diagnosis is made by careful cystoscopic visualization of the bladder. Caulk described bladder papillomata as epithelial in origin, projectile in character, invasive in nature, indolent in progress, with the disposition to be situated upon the bladder mucous membrane. These tumors may be multiple but three-fourths are located close to the trigone of the bladder.

The urologist can usually classify the degree of malignancy present by the cystoscopic appearance of the tumor. Using Broders' classification of 1922, the Grade I tumor with less than 25 per cent malignant cells, cystoscopically will be a papilloma attached to the bladder mucous membranes by means of a long, thin pedicle. The Grade II tumor with 25 to 50 per cent malignant cells will have a thick pedicle, whereas the Grades III and IV will have no pedicle but will arise gradually from the deeper layers of the bladder.

In 1946, Jewett and Strong established the present therapeutic and prognostic criteria by correlation of clinical and pathological findings, namely, that there is a definite relationship between the depth of the tumor invasion of the bladder wall to the therapy and prognosis. They found that cancer of the bladder which had invaded deeply into the muscularis was usually fatal to the patient regardless of the type of treatment used. One cannot cure the surgically incurable cancer of the bladder. Reports indicate, however, that more than 50 per cent of cases are cured by any of the accepted methods of treatment if the cancer has penetrated to less than midway through the muscularis.

Three per cent of all deaths in the United States caused by malignant diseases is caused by cancer of the bladder. The disease is twice as prevalent in men as in women.

The most conservative way to treat bladder tumors is to be radical. Strike fast and with all the force and resource you have at your disposal. The low grade type of tumor can usually be controlled by heroic transurethral resection and fulguration of the tumor mass. Never discharge bladder tumor cases for bladder tumors are prone to recur, often in another part of the bladder. By cystoscopic examination every few months the recurring tumors can be destroyed by transurethral fulguration and resection while the tumors are small. To procrastinate with bladder tumors is sometimes fatal to the patient.

In more advanced bladder tumor cases a suprapubic cystostomy with severe fulguration of the tumor masses and a segmental resection of the bladder is often the treatment of choice. Cystectomy and a diversion of the urinary stream is sometimes done. Vincent Vermooten of Dallas reports favorably on the use of radioactive cobalt in the treatment of cancer of the bladder. This procedure holds much promise for cancer of the bladder.

No attempt has been made to cover the entire field of hematuria, the thought being to review briefly some of the urologic conditions encountered in which hematuria plays a part. If we can remember that some of our very serious conditions can cause hematuria, especially the painless, gross hematuria found in cancer of the bladder, then the effort put forth in the writing of this paper will have been well rewarded.

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ATYPICAL AND MINOR EPILEPTIC SEIZURES *

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NEW ORLEANS

Physicians, and most laymen, have no difficulty recognizing a generalized or *grand mal* epileptic seizure. In fact, the diagnosis is usually made by doctors who never actually witness the attacks but accept the accounts of the patient, his relatives and friends when they describe the sudden snuffing out of consciousness, the fall to the ground, vigorous tonic and clonic movements, biting of the tongue, involuntary urination or defecation and the post-seizure confusion, stupor and headache. If

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more confirmation is needed, the burns, scars or bruises sustained during the attack may be noted during the physical examination. Also, certain neurologic signs, often present for several minutes or even hours after a seizure (such as the Babinski sign) may be observed.

Patients who complain of bizarre alterations of consciousness, which may be brief or prolonged but are decidedly less dramatic than a generalized epileptic seizure, pose different diagnositic problems. If the patient has *grand mal* seizures in addition to these minor, atypical or partial episodes, the physician usually grasps the relationship. However, if a patient has only minor seizures, their epileptic nature may not be promptly appreciated. The term "epileptic equivalents" has been used in the past for such phenomena although clinicians since Hughlings-Jackson [1] have realized that these attacks are epileptic, just as the generalized convulsion is, and the term "equivalent" has no significance. Several important concepts have emerged since Jackson's early clinical expositions and these deserve emphasis. First, the pattern of the minor, atypical or partial seizure is dependent on the anatomic structures in the brain that are involved by excessive, abnormal electrical activity. In other words, the peculiar behavior, hallucinations, autonomic symptoms, bizarre memories and motor activity and other manifestations form this striking clinical picture because specific areas of the brain are the site of origin and limited spread of the epileptic discharge. Second, these seizures, like generalized fits, may be either idiopathic or symptomatic. In the former instance no cause can be specified, even after a careful diagnostic survey, whereas in the latter any one of diverse etiologic factors may be important, such as brain tumors, head injuries, meningitis, encephalitis, birth trauma, cerebrovascular disease, toxic metabolic disorders, and degenerative diseases of the brain. This second point obliges the physician to take a complete history, perform a thorough physical examination and conduct appropriate laboratory studies to establish or exclude etiologic possibilities. Third, these minor seizures have important clinical, electroencephalographic and therapeutic distinctions from the *petit mal* seizures of childhood and focal cortical seizures of the Jacksonian type. Various names, all with some merit but none of them completely satisfactory, have been given to the minor epileptic attacks that are clearly not *grand mal, petit mal* or Jacksonian. These include psychomotor epilepsy [2,3] and temporal lobe epilepsy [4,5], to name only two of the most popular. The clinical manifestations are so polymorphous and the structures possibly involved so complex (temporal lobe, insula, rhinencephalon, diencephalon) that descriptive or anatomic terminology is too cumbersome and laborious for routine clinical use. Among clinicians particularly interested in the disorder, clinical, anatomic and electroencephalographic observations are often utilized in nomenclature but for most clinicians recognition of these seizures and their varied etiologies is enough, and the term, minor epileptic seizures, is probably adequate.

Several summaries of cases will illustrate the range of possibilities.

CASE REPORTS

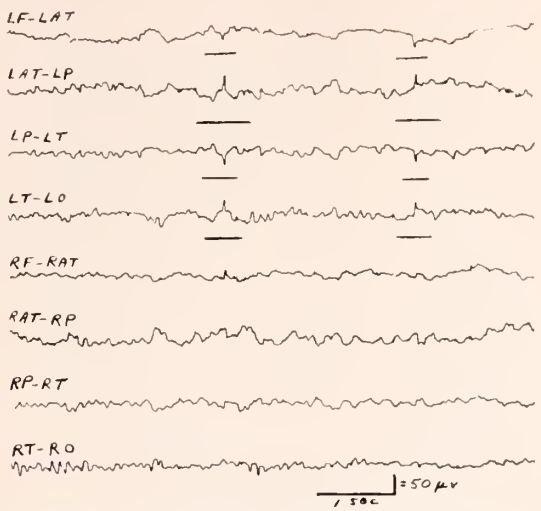
Case No. 1: F. E. T., a man 20 years old, had had measles encephalitis characterized by delirium, stupor and several generalized convulsions at 7 years of age. After recovery from the acute encephalopathy, he had had recurrent attacks, as often as ten a day or as few as one every three months, during which he would become suddenly frightened for no particular reason, then feel chills sweep down his back and increase in crescendo fashion until his entire body was cold. He would become intensely nauseated, immoble and slightly confused although not amnesic. His stomach "growled" and he belched and passed flatus frequently. The attack would terminate in about three minutes and would be followed by a severe headache in the right frontotemporal area. Neurologic examination and an electroencephalogram showed no abnormalities. He tolerated 0.1 Gm. of mebaral three times a day with no side effects. The seizures, which were briefer and associated with much less severe autonomic manifestations, occurred only one to three times a month during the following seven months.

There are several points of interest about this case. An obvious etiologic fac-

tor, measles encephalitis, had produced cerebral damage that resulted in an unusual pattern of seizures with impressive autonomic reactions and mild confusion. Measles encephalitis has been mentioned as one of many infectious or postinfectious causes of what Gastaut [6] called diencephalic psychomotor epilepsy. That the diencephalon, particularly the hypothalamus, is involved in these seizures seems apparent from the clinical description. Isolated fear as an aura or initial manifestation in epilepsy has been frequently observed.[7] The normal electroencephalogram in this patient, made in a period between seizures, is not unusual for Gastaut [6] indicated that this may be the case or there may be interictal electroencephalographic findings. Gibbs and Gibbs [2] described 14 and 6 per second spikes in sleep in some similar cases, which they call thalamic and hypothalamic epilepsy.

Case No. 2: D. C., a school girl aged 17 years, suddenly began having "spells" at the age of 15 years. She had approximately one seizure every two days. The attacks were characterized by a strange, unrecognized taste followed by "blacking out" and amnesia for the next several seconds. She would not fall but seemed confused, made faint muttering noises and tugged at nearby objects or aimlessly crumpled paper. The entire episode would last only several seconds to a minute, after which the patient would resume her preseizure activity. She had never had any *grand mal* seizures. The only significant fact in the history was that her birth was preceded by prolonged, difficult labor. Results of neurologic examination and laboratory studies were within normal limits. An electroencephalogram showed random spikes in the left anterior temporal, left temporal areas (Figure 1). Treatment with 0.1 Gm. of dilantin and 0.064 Gm. of mebaral three times a day has resulted in freedom from seizures for twenty-two months.

The gustatory aura, amnesia, confusion and coordinated, repetitive but purposeless movements are distinctive and form one of the easily recognized types of minor seizure referred to as psychomotor epilepsy or temporal lobe seizures. Temporal area spike discharges in the electroencephalogram are commonly associated with these seizures, most often in sleep,[2] although this relationship is not an invariable one.



(L—left, R—right, F—frontal, C—Central, P—parietal, O—occipital, T—temporal and AT—anterior temporal.)

Fig. 1: (Case 2). Electroencephalogram showing left anterior temporal, left temporal random spike.

Case No. 3: W. N. E., a contractor 31 years old, had had approximately one episode of amnesia every month for seven months. On one occasion, he left home at 10:30 a.m. feeling well and was found seven and one-half hours later, asleep at his summer camp many miles from the city; he did not recall anything that had happened in the interim. His family physician, who saw the patient during two of the seven episodes, described him as apprehensive with hesitant, somewhat slurred speech "as though he were drunk." Both alcoholism and psychopathy had been excluded, however, by many years of observation of this patient by his family physician. About fifteen years before the onset of these amnesic attacks, while playing football, the patient had sustained a head injury followed by periods of loss of consciousness and amnesia. Complete study of the patient including an electroencephalogram made while he was awake and asleep revealed no abnormalities. A second electroencephalogram made six months after the first showed anterior temporal, temporal random spikes (Figure 2). Treatment with 0.1 Gm. of dilantin three times a day and 0.25 Gm. of mysoline twice a day has resulted in freedom from seizures for the past eight months.

Amnesia always poses a difficult diagnostic problem in that the physician must first decide whether it is due to epilepsy, hysteria or head injury, or whether it is feigned, as in psychopathic persons.[3] Careful history is the most valuable aid. The neurologic examination may or may not be

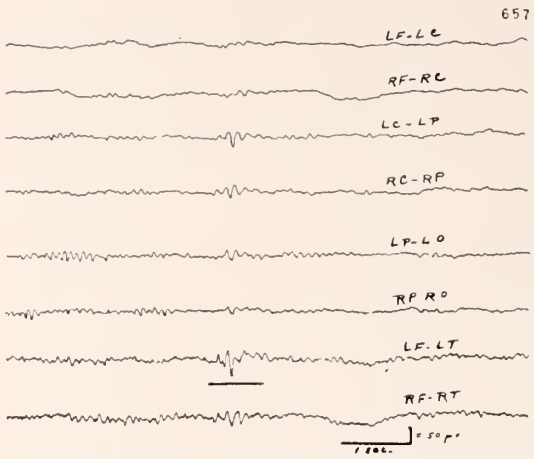


Fig. 2: (Case 3). Electroencephalogram showing diphasic spike from left temporal area.

helpful. Definite electroencephalographic findings may confirm, but not prove, certain clinical suspicions. And finally time and observation will usually furnish a definitive answer.

Case No. 4: J. F. C., a farmer 44 years old, began having episodes which he described as "double-thinking" in October 1955. He would suddenly become slightly confused and hear people talking to him, but he could see that those around him were not speaking at all. He was aware that the voices he heard were hallucinations. On another occasion while walking in the forest he had heard a popular song. This was so vivid that he looked around for a phonograph, even though he recognized this as an auditory hallucination. These hallucinations were so disturbing that he did not discuss them with anyone for fear they would consider him psychotic, until intermittent attacks of aphasia and a *grand mal* convulsion made him seek medical advice. At first results of all studies were within normal limits, including an electroencephalogram. But equivocal pneumoencephalographic observations, increasing attacks of aphasia and a second electroencephalogram, which showed a left temporal slow wave focus (Figure 3), led to arteriography, craniotomy and discovery of a glioblastoma multiforme in the left temporal lobe.

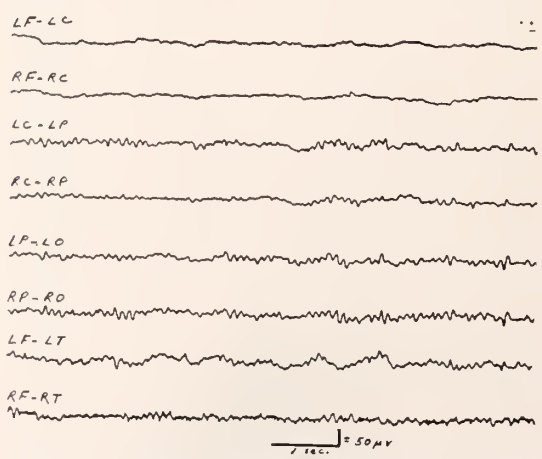


Fig. 3: (Case 4). Electroencephalogram showing intermittent slow wave focus in left temporal area.

Case No. 5: C. M. T., a male student 21 years old, had had four seizures in six weeks. The patient would suddenly experience burning pain in the right side of the neck which extended upward, behind the ear to the vertex of the scalp. He would then sit or lie down and remain motionless. This was followed by confusion and giddiness (not true vertigo) and then amnesia for several seconds. When his memory returned, his vision would be blurred for a few seconds and a diffuse headache would develop and last several minutes or hours. Past and family histories, and neurologic examination revealed no abnormalities. The electroencephalogram showed much normal activity but paroxysmal slowing and increase in voltage of the rhythms in the central areas were noted occasionally; during hyperventilation there was a large build-up or diffuse slowing and increase in voltage (Figure 4). The patient has been taking 0.25 Gm. of mysoline twice a day for seven months and has had no seizures.

Burning pain is not a frequent initial symptom in epilepsy, although Whitty [8] reported 5 cases in which burning pain similar to that in causalgia was an epileptic aura. The brief alteration in consciousness, amnesic component and abnormal electroencephalographic findings make the epileptic character of these spells apparent, although the total clinical picture really gives no clues to the cerebral areas involved or the site of origin of the discharge, unless one accepts Whitty's hypothesis that an aura of burning pain suggests involvement of the parietal cortex.

DISCUSSION

The cases presented were selected from a routine office and hospital neurologic practice and represent no truly unique problems. Patients with similar histories also visit general practitioners and specialists. The cases described were selected for presentation because they bring out several points considered earlier. These minor, atypical or partial seizures are epileptic phenomena. If the patient also has *grand mal* seizures and a family history of epilepsy, this fact is easier to appreciate.

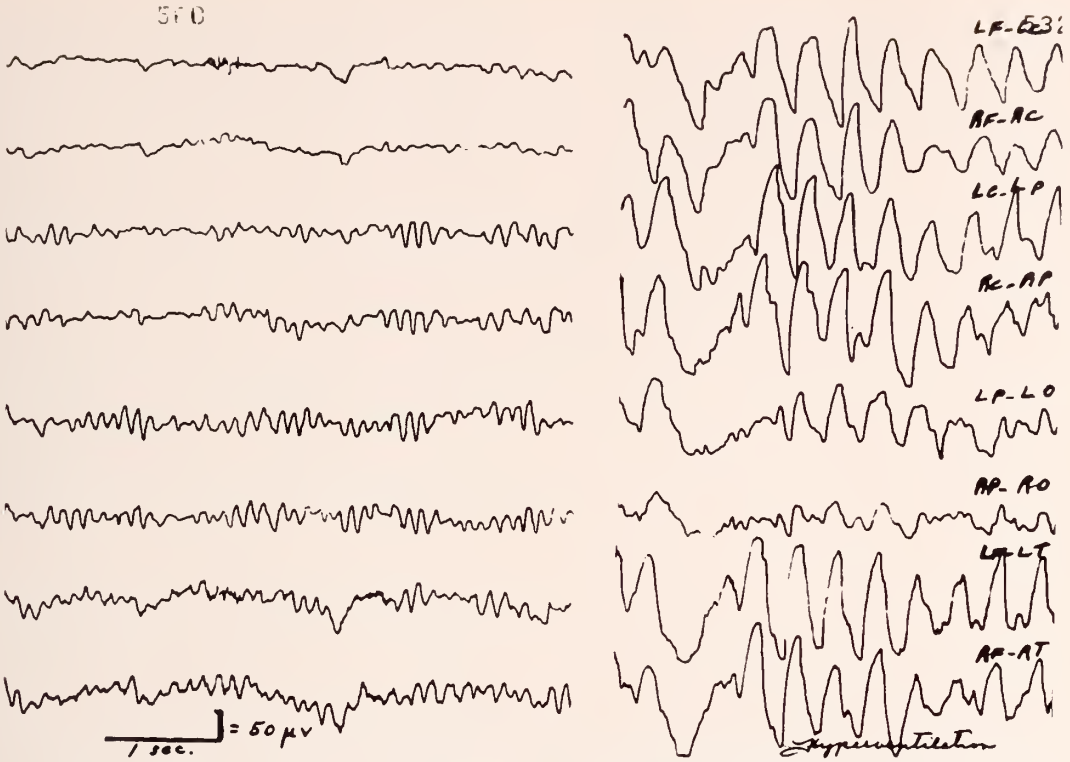


Fig. 4: (Case 5). Electroencephalogram showing normal rhythms on the left, and on the right, large build-up (slowing and increase in voltage) during hyperventilation.

However, some patients have only minor attacks and in some the manifestations are so atypical and bizarre as to suggest other diagnoses, such as faints or syncope, apoplexy or strokes, hysteria or schizophrenia. Faints and fits are frequently confused because of the common factor of loss of consciousness, but the stereotyped sequence of events in a faint, the occurrence in the erect posture or after sudden emotional shock, the gradual onset with pallor, weakness and visual blurring are too familiar to require much comment. Additional factors, such as postural hypotension, carotid sinus sensitivity and heart block, will be apparent in certain cases. Minor seizures have no such order and their very disorderliness should arouse suspicion of epilepsy, though it is true that there are some similarities, and a central nervous system that is unstable for the maintenance of consciousness is common to both.[9] Cerebrovascular accidents are readily excluded from the differential diagnosis because there are no neurologic residuals between attacks and often these minor seizures occur much too frequently to be considered even remotely as cerebrovascular accidents. It should be mentioned that minor and major seizures are occasionally residuals of cerebrovascular accidents such as thrombosis, hemorrhages, or embolism. Hysteria and schizophrenia are often eliminated after careful history and observation make it clear that the seizures occur in sudden, paroxysmal fashion and the patient is normal or nearly so between attacks, whereas in patients with psychiatric disorders this is not usually the case. Here again it should be pointed out that patients with epilepsy may also have personality disorders and emotional disturbances, so that neat distinctions are not always possible. The neurologic, general physical and electroencephalographic examinations are all helpful adjuncts but an accurate medical history is the most important item and a diagnosis of epilepsy cannot be made on laboratory studies alone, including the electroencephalogram.[10]

If the physician thinks that a given patient with minor or atypical seizures has epilepsy, some thought should be given to distinguishing *grand mal*, *petit mal* and Jacksonian types from the type of seizures under consideration. This can be done by clinical analysis of the seizure patterns. This also gives clues to the areas of brain involved (temporal lobe, insula, diencephalon, rhinencephalon). With tentative localization, various etiologic factors should be considered in the light of the past medical history, age of onset and the results of a complete study of the patient. In 2 of the 5 illustrative cases herein presented no obvious cause of the seizures could be determined. In the other 3, one had had measles encephalomyelitis, one a malignant brain tumor, and one an old head injury.

Treatment depends on the cause. In patients with focal lesions, such as tumors or vascular malformations, palliative or curative neurosurgical therapy is of great importance. Some investigators [11] have resected portions of the temporal lobe of patients with psychomotor epilepsy without demonstrable neoplasms but in whom medical therapy had not controlled the seizures. The initial enthusiasm for this approach has been tempered somewhat during the past few years and it is still too early to evaluate results. Each case must be weighed on its individual merits before surgical treatment is decided upon or rejected. Medical therapy is based on use of anticonvulsant drugs and general measures such as prohibition of alcohol, counseling and supportive psychotherapy. Not everyone is agreed on the most efficacious drugs and it is difficult to conduct adequate statistical surveys. Everyone does agree that these minor, atypical, psychomotor or temporal lobe seizures are the most difficult types of epilepsy to treat. We have found dilantin, mebaral, mysoline and mesantoin useful either alone or in various combinations. The first three have less side effects than mesantoin and should be tried first.

SUMMARY

Certain brief alterations in consciousness, unusual episodic behavior, and peculiar sensations, thoughts, and hallucinations may be manifestations of epilepsy. The patient may or may not have had generalized epileptic seizures at some time, and there may or may not be a history of epilepsy in the family. Causes of these attacks are varied and not always clearly determined, but in certain cases can be traced to injury, infectious diseases, and, in a few cases, tumors of the brain. By careful history, examination, and some laboratory tests the physician distinguishes these minor epileptic seizures from true faints, non-neurologic disease and psychiatric disturbances. Once their nature is understood, various methods of treatment, depending on the cause, are available.

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DISCUSSION

Dr. Gregory S. Ferriss * (New Orleans): Dr. Moossy has given us a very excellent summary of the problem of minor epileptic seizures. His cases illustrate several varieties of epileptic patterns, and they are of diverse etiologies.

In practice, minor seizures unaccompanied by major seizures present very difficult problems in diagnosis. The medical history, with emphasis on delineation of a constant pattern with sudden or paroxysmal onset, is usually the most valuable part of the clinical work-up. The frequency of occurrence of personality disturbances, often of a hysterical or a schizoid type, has been noted many times. History-taking is often difficult, the epi-

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leptic phenomena being hidden within a mass of other symptoms. It is in such cases, as well as in cases in which no witness is available to describe the seizures, that the electroencephalogram may become very helpful. The electroencephalographer has somehow erroneously come to be thought of by many people not usually concerned with epilepsy as the final arbiter of its diagnosis. This is not so. However, the EEG frequently does show inter-seizure abnormalities of a type known to occur in epileptics, and furthermore, "activation" techniques, especially intravenous metrazol, have been developed to show such abnormalities when they are not seen in the usual record. Metrazol can also be given to precipitate a clinical seizure of the patient's type, should such doubts be remaining that observation of a seizure were deemed essential to diagnosis.

We should all be aware of the pitfalls of the premature use of anticonvulsants as a "therapeutic trial" in attempting to establish the epileptic nature of suspected minor or atypical seizures, though later a good response may ultimately be gratifying confirmation. As Dr. Moossy emphasized, the treatment depends on the cause, and since, in almost all cases, these seizures are symptomatic of cerebral pathology, every effort should be made to obtain an exact and specific etiologic diagnosis in every case. Often the indicated work-up is extensive, but the temptation to treat the symptom (the seizure) alone could lead us to miss the occasional potentially curable lesion, such as vascular lues, meningioma, etc.

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USE OF RADIOACTIVE IODINE FOR INTRACTABLE ANGINA PECTORIS *

ALLAN M. GOLDMAN, M. D. †
NEW ORLEANS

In the treatment of refractory heart disease it is necessary to review the therapy and consider both extrinsic and intrinsic factors that increase cardiac work. For increased efficiency, careful use should be made of digitalis, vasodilator drugs, low salt diet, and diuretics. Sedatives should be employed to stabilize emotion, and exercise must be restricted to conform with the functional capacity of the heart.[32]

Evaluation of thyroid function is indicated because an overactive thyroid is known to create a greater burden on the cardiovascular system. With exacerbation of a toxic goiter, evidences of angina pectoris and congestive heart failure become more severe;[9] whereas operative removal of such a goiter is followed by dramatic relief of angina and heart failure.

Induction of a hypothyroid state in a euthyroid patient, previously reported by many authors, represents an extension of this therapeutic principle. Purposeful induction of myxedema lessens the demands on the heart of a seriously ill patient by reducing its work and requiring a lower level of oxygen consumption.[7] This is especially true where arteriosclerotic coronary vessels and previous myocardial infarction impair the circulation to the cardiac muscle with resultant anoxemia and angina.

Good results with this method have been reported by Blumgart and associates[12] as early as 1933. Improvement was noted in over 350 patients with angina pectoris and congestive heart failure when myxedema was induced by total thyroidectomy. However, the hazards of operation in an already chronically ill patient are readily recognized. Other surgical measures advocated include sympathectomy, posterior rhizotomy, pericardial injury, omentopexy, pericoronary neurectomy, and arterialization of the coronary sinus.[8] Further work is necessary to determine the value of these and other procedures now under investigation.

Following the work of Astwood[2] with the thiourea drugs in hyperthyroidism, medical thyroidectomy has been attempted. Thiouracil and propythiouracil have been utilized in euthyroid patients with angina pectoris in order to obtain the necessary hypometabolism.[4, 13, 19, 20, 28, 31] Unfortunately, only some of the patients responded, and an indefinite period of administration was required to maintain the hypothyroid state. Serious drug reactions have been reported, including agranulocytosis and death in a few instances.[3, 14, 22, 24, 25, 26, 27]

Following the successful use of radioactive iodine, I^{131} in hyperthyroidism, its use was suggested in euthyroid cardiac

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, Alexandria, La., April 24, 1956.

† From the Department of Medicine, Tulane University School of Medicine and Touro Infirmary, New Orleans, Louisiana.

patients. The thyroid has a remarkable affinity for iodine and appears to be the only organ capable of concentrating that element to a high degree.[33] Unlike the action of roentgen-ray, that of I^{131} is selective. Since I^{131} emits both beta and gamma rays, safety precautions must be observed. A completely equipped laboratory is necessary for proper handling of the material, with apparatus for measuring by remote control and for dilution. Sensitive measuring equipment and trained personnel are essential to guard against the danger of excretion and external radiation. Accurate measurement of urinary I,[131, 18] and direct uptake over the gland[16] have previously been described.

Before therapy with I^{131} can be instituted, a tracer dose must be given to determine the uptake of the gland. In patients whose uptake is unduly low because of prior ingestion of iodine, or who have recently had intravenous pyelography or cholecystography, Blumgart[7] recommends deiodination of the thyroid by means of the thiourea derivatives. After a suitable time, tracer studies may be instituted and a therapeutic dose of I^{131} may be administered.

Freedberg and co-workers[17] reported the pathologic effects of I^{131} on the normal thyroid gland of man, describing postmortem material in 16 euthyroid patients who died at varying intervals after I^{131} therapy. Seven days after oral administration of 20 millicuries, no histologic changes were noted that could be attributed to I.[131] Fourteen and twenty-four days after administration of 59 and 26.4 millicuries, respectively, massive radiation effects were detectable. Distortion and destruction of the normal thyroid architecture were noted to be maximal at the center of the gland. Edema and degeneration of the stroma, acute vasculitis, with thrombosis and hemorrhage, epithelial swelling and vacuolization, follicular destruction, and polymorphonuclear infiltration were all present. The periphery of the gland revealed less damage, but the follicles were disrupted, and colloid and round cell infiltration were evident.

Further changes in patients who survived a longer period included increased fibrous stroma, lymphocytic infiltration, and arteriolar intimal thickening and hyalinization. The follicular epithelium became desquamated and admixed with a fragmented or globular colloid. Also noted were atypical cells with large hyperchromatic nuclei. The thyroid gland was largely replaced by dense fibrous tissue in patients who survived for three hundred and sixteen to one thousand and sixty-nine days after treatment with I.[131] The remaining follicles were extremely disrupted. No irradiation damage to the parathyroid glands, pituitary glands, trachea, larynx, or adrenal glands was reported. No thyroid neoplasm and no toxic effect on the kidney, peripheral blood, or blood-forming organs that could be directly related to I^{131} have been reported in the literature.[8]

CLINICAL INDICATIONS AND CONTRAINDICATIONS TO I^{131} THERAPY

In selecting patients for I^{131} therapy, Freedberg and associates[15] called attention to the fact that the course of angina is often irregular and characterized by periods of unexpected exacerbation and remission. When all standard forms of treatment have failed and the patient shows evidence of continued incapacity in spite of extreme restriction of activity, radioactive iodine therapy should be considered. Jaffe and associates[21] recommend a careful history, physical examination, roentgenogram of the chest, electrocardiogram, complete blood studies, urinalysis, determination of basal metabolic rate, protein bound iodine, blood cholesterol, and radioactive iodine tracer studies prior to therapy. They treated 100 euthyroid patients by the multiple small dose technic, using 6 millicuries of I^{131} in 20 cc. of water orally each week for five weeks. Radiation thyroiditis and the liberation of large amounts of thyroxin into the blood stream were avoided. Gradual rather than sudden myxedema was produced. When additional doses were necessary, a period of two months was allowed to elapse, since I^{131} has a physical half-life of eight days.

Most authors[7-10, 33] agree that favorable

candidates for I^{131} therapy include the following: (1) patients with severe angina, who respond poorly to careful medical treatment, (2) patients in whom sufficient time has elapsed to make spontaneous improvement unlikely, (3) cooperative, alert, intelligent, and emotionally stable patients who are willing to refrain from excessive use of tobacco and to remain on a low fat diet, (4) patients with such severe angina as to be frequently awakened at night, making adequate rest impossible and thus preventing them from earning a living, (5) patients with frequent attacks on slight to moderate exertion, such as walking short distances or climbing a flight of stairs or following meals, (6) patients with no signs of hypothyroid states, i. e., basal metabolic rate and iodine tracer studies within normal range and blood cholesterol not abnormally high, (7) patients with no serious concomitant disease who have been relieved of some or all cardiac pain after suffering one or more myocardial infarcts, but whose economic status and occupation will permit them to refrain from strenuous physical work.

Contraindications to I^{131} therapy include: (1) emotionally unstable individuals particularly subject to depressive episodes, (2) intermittent claudication in the legs, (3) patients with rheumatic arthritis or active rheumatic fever, (4) tendency toward embolic phenomena that may dominate the clinical picture at any time, (5) rapidly progressive clinical course (malignant hypertension, syphilitic heart disease), (6) low initial BMR (less than minus 15 per cent), (7) acute myocardial infarction, (8) poor risks for follow-up treatment and careful future management.

SELECTION OF PATIENTS

The present series includes 13 patients treated with therapeutic doses of I^{131} and followed from 1951 to the present time. Patients were selected on an individual basis when all other forms of therapy failed to produce improvement. Seven of the patients were women and six were men, their ages ranging from forty-five to seventy-nine years. A tracer dose of 50 microcuries was used, and the uptake was measured at a distance of 17 cm. directly over the gland in the Biophysics Department at Touro Infirmary. Normal uptake of radioactive iodine is considered to be between 10 and 40 percent of the tracer dose in twenty-four hours. Although some of the patients were outside this range, all were considered to be suitable candidates for this therapy. One patient with an uptake of 50 per cent was not considered to be clinically hyperthyroid. Treatment doses varied between 25 and 40 millicuries. In the 13 patients in the present series, a single large therapeutic dose was used because it was desired to shorten the period of irradiation and secure an earlier onset of hypothyroidism and because the early supply of the radioactive element from the Oak Ridge Laboratory was uncertain. This single dose resulted in postirradiation thyroiditis, release of large amounts of thyroid hormone, and exacerbation of the patients' symptoms. Since this course has proved unwise, future patients will be treated by divided doses. Later experience reported by Blumgart and associates[8] in 1,070 euthyroid patients from many clinics has proved the value of divided doses given at weekly intervals until the desired therapeutic result is obtained.

Twelve of the patients were hospitalized to secure maximal improvement prior to irradiation therapy and to reduce postirradiation hazard. One received I^{131} as an outpatient but had to be hospitalized later because of increasing severity of his angina following postirradiation thyroiditis. In all patients some therapeutic result was obtained within four weeks to four months. Results are summarized in Table 1. Five of the patients died, 3 from acute myocardial infarction, 1 following the development of acute pulmonary edema, and 1 from a cerebrovascular accident. A lymphoblastic lymphoma developed in one patient nine months after administration of the treatment dose. It is interesting that this patient has several sisters and brothers with malignant disease. Follow-up studies of the 8 surviving patients now varies from two to five years. Whenever possible, recent basal metabolic rates, as

TABLE 1
RESULTS OF TREATMENT OF ANGINA PECTORIS WITH I^{131}

Pt. No.	Diagnosis	% Uptake I^{113} *	Treatment I^{131} (mc)	Results of Therapy
1	HCVD ASHD	50.7	40	Striking improvement 1 month after treatment.
2	HCVD Myoc. Infarct.	24.2	35	Moderate improvement in 5 weeks; striking improvement in 2 months.
3	HCVD Diabetes ASHD	19.9	25	Slight improvement in 4 weeks; striking improvement in 3 months. Died suddenly 4 months after treatment following acute myocardial infarction.
4	ASHD Myocardial Infarction	34.6	40	Moderate improvement in 2½ months. Lymphoblastic lymphoma in neck biopsy 10 months after treatment.
5	HCVD ASHD	26.4	35	Acute myocardial infarction 2 weeks after treatment. Moderate improvement in 3 months, striking improvement in 5 months.
6	HCVD Myoc. Infarct.	20.0	35	Moderate improvement in 2 months. Generalized hypertrophic arthritis.
7	HCVD Myoc. Infarct.	29.9	25	Slight improvement in 6 weeks; striking improvement in 5 months. Died 16 months after treatment following cerebrovascular accident.
8	HCVD Myoc. Infarct.	34.6	40	Died 7 weeks after treatment following 2nd. myocardial infarction. Insufficient time for improvement.
9	HCVD Myoc. Infarct.	15.5	40	Moderate improvement 4 months after treatment. Mild cardiac failure in 5th month.
10	HCVD CHF	36.0	35	Died 5 months after treatment following acute pulmonary edema.
11	ASHD Myoc. Infarct.	41.2	40	Striking improvement in 2½ months. One episode of mild failure following pneumonia.
12	HCVD Myoc. Infarct.	32.5	25	Striking improvement in 2 months.
13	HCVD CHF	9.06	40	Died in 3 weeks of acute myocardial infarction. Insufficient time for improvement.

* Distance 17 cm. in all cases except Nos. 3 and 12, in both of which distances used were 10 cm. and 30 cm.

well as blood cholesterol studies, have been carried out. The latter are high in most instances and correlate well with the clinical hypothyroid state. Results were classified as excellent in 5 cases, good in 1, and fair in 2 cases. (Table 2)

There are few objective tests to determine the presence or absence of angina pectoris. The patient's statement about chest pain was correlated with information obtained about his physical activities and mental attitude.[33] In each instance, onset of clinical improvement coincided with the appearance of the symptoms and signs of mild myxedema.[8] Fullness and puffiness of the face, swelling of the eyelids, fatigue, hoarseness, dryness of the skin, and increased sensitivity to cold were noted early. Later symptoms included swelling of the tongue, stiffness and pain in the joints, and the sensation of a swollen abdomen. The time when hypometabolism and clinical improvement will occur cannot be predicted by the physician or patient. With relief of anginal pain and onset of myxedema, a daily dose of 6 to 12 mg. of desiccated thyroid should be administered. In each patient, thyroid dosage must be adjusted to

TABLE 2

FOLLOW-UP RESULTS OF TREATMENT OF ANGINA PECTORIS WITH I^{131}

Pt. No.	Interval From Treatment to Improvement	Result of last BMR	Blood Cholesterol and Esters		Present Clinical Symptoms	Follow Up Exam. Duration	Result
1	5 weeks	—32%			Occasional angina, limited activity.	30 mos.	Fair
2	5 weeks	—24%	C CE	420 350	No. pain. Complete relief returned to nursing 28 months later.	19 mos.	Excellent
3					Patient died.	4 mos.	
4	10 weeks	—32%	C CE	980 790	Almost complete relief but complicated by lymphoma.	20 mos.	Excellent
5	14 weeks	—22%	C CE	570 390	Rare anginal pain, normal activity.	27 mos.	Excellent
6	8 weeks				Rare cardiac pain, mild failure well controlled.	32 mos.	Good
7					Patient died.	16 mos.	
8					Patient died.	7 wks.	
9	18 weeks	—14%	C CE	395 330	Only occasional angina. Mild symptoms cardiac failure.	30½ mos.	Fair
10					Patient died.	5 mos.	
11	10 weeks	—38%	C CE	320 170	Rare pain. Able to attend court without pain.	26 mos.	Excellent
12	8 weeks	—15%	C CE	465 450	Rare use nitroglycerine, normal activity.	5 yrs.	Excellent
13					Patient died.	3 wks.	

maintain the lowest metabolic level at which maximal relief from cardiac disease may be experienced with minimal discomfort from myxedema. Occasionally, this may not be possible. Most patients are maintained at a BMR level of minus 20 to minus 25 per cent on a daily dose of 6 to 30 mg. of thyroid extract. According to Blumgart,[8] an occasional patient may experience recurrence of symptoms, because the residual thyroid tissue has regenerated and caused the metabolic rate to approach pretreatment level. In such a case, thyroid medication should be withdrawn, and after administration of a tracer dose, an additional therapeutic dose may be given.

Kurland and associates[23] described radiographic and electrocardiographic changes in cardiac patients who were euthyroid prior to induction of persistent hypothyroidism by one or more doses of $I.^{131}$ The duration of the hypometabolism ranged from two to fifty-three months, with an average of twenty-seven months. Changes in size and configuration of the heart were studied in 27 patients, and variations in the electrocardiograms were examined in 28 patients. Ten of 13 patients with good or striking improvement in angina pectoris from I^{131} treatment showed no increase in cardiac size. In 2 others the cardiac size remained unchanged during periods of twenty-six and thirty-eight months of relief, respectively, but later increased during exacerbations of angina pectoris and congestive heart failure. Cardiac enlargement progressively increased in 5 of 6 patients with angina pectoris unimproved by I^{131} treatment, whereas 6 patients with chronic cardiac insufficiency showed no

cardiac enlargement during most of the nineteen to fifty-three months of hypometabolism. Two patients with both angina pectoris and cardiac insufficiency received definite benefit from I^{131} therapy, even though cardiac size progressively increased. The development of myxedema was associated with electrocardiographic changes, which included decrease in voltage, flattening or inversion of the T waves, and slight increase in QT interval. In the present series, several electrocardiographic tracings revealed similar results, but it must be remembered that progression of organic heart disease and the use of certain drugs will modify existing electrocardiographic patterns. Treatment with thyroid extract produced reversion of these changes, with no further progression despite continued hypometabolism. These studies suggest that "myxedema" heart", as characterized by angina pectoris or congestive failure and striking electrocardiographic and radiographic changes does not occur in patients with prolonged, controlled I^{131}-induced hypothyroidism.

Cholesterol values obtained following the production of myxedema in the present series and reports of others[6, 8] raise the question of whether or not such patients are predisposed to atherosclerosis. Blumgart and associates[6] reported clinical and postmortem observations in 8 patients who survived from one to thirteen years following total thyroidectomy and in whom hypometabolism with elevated cholesterol values was present. These were younger patients with rheumatic heart disease. None had complete occlusion of the coronary arteries, and only 3 of the 8 had slight narrowing of one of the main stems. In the other 5, arterial damage from atheromatosis and atherosclerosis varied greatly, but conditions were similar to those observed in euthyroid patients. Daily use of small doses of thyroid extract in the latter group might exert some protective action.

DISCUSSION

Treatment of the euthyroid patient with severe angina pectoris is symptomatic, the rationale being that reduction of total metabolism of the body will reduce the cardiac requirements of these severely ill patients to a level within their cardiac reserve.[32] Each case must be considered individually, although some broad indications for this treatment may be accepted. Rosenfeld[30] stressed the importance of frequent and continued observation of such patients, especially after treatment. Patients with severe cardiac abnormalities are subject to many complications that occur in the course of their disease. Since their state of health is dynamic and changeable rather than static, it must be watched even more carefully after administration of $I,^{131}$ since the effects of mild myxedema and the variable effects of extract of thyroid therapy are added to the previous disease.

The complex relationship of the thyroid with other endocrine glands raises the question of the need for other hormones. Although there is no evidence as yet that the duration of life is prolonged by such treatment, the many comfortable months to years it affords are welcomed by the seriously ill cardiac patient. In the future, a simple surgical procedure may be devised to improve blood supply to the myocardium. Until then, attention must be directed toward means of reducing the load carried by a chronically diseased heart. No untoward sequelae to radiation have been noted thus far, but further studies seem indicated. Varied dosage schedules of I^{131} are being employed by other clinics[6, 8, 21, 30] to clarify the advantages and disadvantages of the different programs of treatment.

SUMMARY

Thirteen euthyroid patients with intractable angina pectoris have been treated with radioactive iodine after all conventional forms of therapy failed. Persistent hypothyroidism was produced in all patients. Eight of the 13 are living at the present time. A single massive irradiation dose was employed in all instances, and the resultant thyroiditis effected temporary exacerbation of anginal symptoms. Divided dosage is indicated to avoid this hazard. No toxic effect has been noted on the hematopoietic system or the kidneys. Sur-

viving patients are being maintained on minimal doses of thyroid extract to prevent clinical myxedema. Indications and contraindications for I^{131} therapy are reviewed. The favorable results obtained in the surviving patients in this series seem to warrant further careful study of this method of relieving intractable heart disease.

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DANGEROUS FEATURES IN THE NEW SOCIAL SECURITY AMENDMENTS LAW

The efforts of organized medicine suffered a serious defeat at the hands of the Social Security lobby with the enactment of the bill entitled, Social Security Amendments of 1955 (HR 7225). It was signed on August 1, 1956, by President Eisenhower. This law has certain features which were strenuously opposed by the AMA and by the majority of the constituent state medical associations.

The provision of the bill regarded as most dangerous is that which provides benefits for total disability after age 50. This feature maneuvers physicians into the social insurance part of the Social Security program and would contrive to have the doctors working at first part time, and later, entirely under the direction of some part of this federal agency. Since Louisiana is the state whose government has ventured furthest toward the welfare state, physicians of Louisiana have good reason to regard the law as ominous, and there is a reasonable expectation that it will be the basis for further ventures into the realm of the welfare state. The basis for such a fear is the history of successive amendments to the original Social Security law since 1935, and the parallel observation that forty years ago when the income tax became law no one suggested the extent of its present power. The contention that this sequence of events is threatening is supported by the provisions in the amendments to the Social Security Act. Certain amendments of the 81st, the 82nd, and the 83rd Congresses provided payment from public funds for physicians to treat disabled charity patients covered by the Social Security Act, and then certain other amendments established the "disability freeze" entailing a projected medical certification. The precedent for the determination of disability on terms of a federal program was thus established. These amendments were the preparation for the present and most recently enacted law, which provides these benefits.

These dangers were anticipated and comment was made in these columns * explaining this attempt to enact the state medicine program piece by piece. When the most recent law was being considered in Congress, no hearings were allowed by the House, but the Senate held extensive hearings. The Louisiana State Medical Society sent a representative to appear before the Finance Committee of the United States Senate, which was considering the bill, and

* New Orleans M. & S. J., Editorial, 104:549, (July) 1952.

the undesirable features were explained. The comment was made that age limits would inevitably be lowered by successive amendments. It was stated that the number of those who could qualify for total disability under the loose definition given in the bill would be far greater than 300,000. The reason for making this statement is that each one of those 160,000 practicing physicians knows among his own patients at least 5 to 10 persons who could qualify. When mental cases are included, the number potentially receiving benefits in ten years would be 2 to 3 million.

If such is the case, the operation of this law will soon require an increase in the payroll tax, or substantial support from other tax sources.

From the point of view of the individual, as well as that of the national economy, rehabilitation of the disabled is to be preferred to disability support or maintenance. Competent authorities have estimated that up to 9 out of 10 disabled persons can be rehabilitated if they have the will and opportunity. Payments to the disabled under this law would have the tendency to discourage effort and initiative, retard rehabilitation, and retard return to productive employment. Nearly every doctor knows of patients who claimed and successfully maintained that the effects of injuries prevented their working—until "the case was settled," when they immediately returned to full employment.

The feature of the law that gives physicians the most concern, from a professional point of view, is the determination and care of the disability. There are no exact medical, legal, or social methods of determining total disability that are uniformly applicable. As a result, its determination is often dificult or impossible. Among the majority of those who would seek coverage in this field under this law it would be a matter of the will.

In certifying as to the applicant's status the doctor will be placed between the patient and the government. Except in a few obvious cases he cannot satisfy both. The patient will pursue his project from doctor to doctor. As in the field of insanity, he may be disabled in one state and competent in another. A clamor will arise for an official determination by medical governmental authority. This would likely be followed by the demand that the same official care for the patient while disabled. As the age limits of 18 and 50 approach each other in successive legislative alterations, a full fledged system of gradually expanding state medicine will be developed among us.

When the bill was up for action before the Senate, the final vote was 90 to 0 in its favor. In the vote on the disability provision previous to the final vote it was 47 to 45, the two Senators from our state voting to sustain the disability feature and, in our opinion, voting against the best interests of medicine, and in favor of this distinctly socialistic trend. The decision of the majority was manifest in the face of clear-cut explanations and distinct representations in regard to the contrary point of view. We have in this, and in other recent legislation, the unhappy spectacle of both parties competing with each other for an opportunity to embrace some socialistic principle. To protect the public against such legislation it is not enough to inform the Congress of its dangers. The public has to be brought to the realization of the dangers and then the public may lead the Congress. As a friend of the author said recently, "If every man is to be a King, the supplication of 'God save the King' seems to be the order of the day."

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

DR. GRAVES HONORED

We quote the following from the AMA Secretary's Letter of July 27th:

Some men are content to sit around and wait to go to Heaven while others make Heaven out of their surroundings.

That's what Dr. James Q. Graves has done down in Monroe, Louisiana.

Friends and townspeople in all walks of life honored Jim, who has served 27 consecutive years as a member of the A.M.A. House of Delegates, on the occasion of his 50 years of practice.

It must have been a "heavenly affair" because, judging from the prominent newspaper accounts, the beloved doctor was showered with praise from the lips of many speakers, some of whom were his long-time patients.

Jim was guest of honor at a big testimonial dinner at St. Francis Hospital in Monroe. Dr. R. B. Robins, of Camden, Ark., a former vice president of the A.M.A., and past president of the American Academy of General Practice, was the principal speaker.

Dr. Graves, who developed a happy facility for collecting friends by the score, spoke too. He touched on the medical past and then took a glimpse at the future, predicting among other things that research "will develop vitamins to meet the needs of every organ of the body," and that "gastric and duodenal ulcers will be cured or prevented by the correction of the physiology or the stabilization of the nervous mechanism of the human body."

Jim spiced his speech with many an interesting anecdote taken from his long and benevolent career in medicine.

There was the time, years back, when he set out on horseback to see a patient. He and his horse crossed a river swamp safely on a flatboat, but on the return trip the flatboat sank. His horse swam about two miles before reaching dry land with the young doctor hanging onto his tail.

"He saved my life," Dr. Graves recalled.

Doctor Jim is a man with many friends; he collects them like other people collect rare china, precious gems or cigar wrappers. He has the uncanny knack of finding the friends for his collection everywhere. It may be the man who serves him or the man he serves. It may be a casual acquaintance, a policeman on the corner, or the town banker. Jim must have learned long ago that friendship can be bought with kindness, consideration, thoughtfulness and tolerance. His colleagues in the House of Delegates know that he has all of these qualities . . . and his patients do, too.

One of them, a woman whom he has attended since 1917, recalled that her husband owes his life to Dr. Graves, "Who got up from his bed with fever to come to him during the flu epidemic in January, 1920."

Jim, the son of a cotton planter, is a fine physician who is extremely modest and lives unpretentiously. He and his wife, the niece of a former Supreme Court Justice, were blessed with four daughters—all of whom are now married and have children of their own.

"Sometime during each week, but not all at the same time, they have dinner with us," he said, adding: "That's what makes life worth living."

The Louisiana State Medical Society wishes to concur in the above and add their congratulations on the honor so gratefully conferred on him by loyal confreres and fellow citizens, an honor and recognition unquestionably merited. Jim is one of the most outstanding physicians of the State and deserves any acknowledgment that the people of his State might show him for his wonderful deeds.

Jim has been loyal to his profession and has created with his friends confidence and respect.

Jim has represented our State Society as a delegate to the American Medical Association House of Delegates for many years, with distinction and credit, and is the oldest AMA delegate in line of service, and his fellow delegates respect and love him.

All glory to you Jim, our friend and hero! We salute you!

FROM WASHINGTON

The social security bill (H.R. 7225) now is the law of the land—Public Law 880 of the second session, 84th Congress. Increased OASI taxes to support payments to the disabled at age 50 become payable on January 1, 1957. Disability benefits become payable on July 1, 1957. Until and unless new regulations are issued, doctors will follow the same procedure in connection with this new law that they follow under the disability freeze amendment now in effect. The physician makes his medical findings and turns in his report to the state agency in charge, usually the office or department of rehabilitation. The decision then is made by the agency, based on vocational as well as medical findings, as to the applicant's disability.

Following is the complete text of a statement

issued by President Eisenhower August 1 when he announced he had signed the social security bill, H.R. 7225:

"I have today signed H.R. 7225, the Social Security Amendments of 1956. The new law embraces a wide range of changes in old-age and survivors insurance, the public assistance programs, and child welfare services.

"This Administration's strong support of the social security program was demonstrated by the broad expansion and improvements enacted in 1954 at my recommendation. The 1954 Amendments, which extended coverage of the program to millions of additional persons and included higher benefits for all who were then or who would become beneficiaries, have had a major impact in bringing greater security to our people.

"The new law also contains certain major provisions which were recommended by the Administration. It extends social security coverage to about 600,000 additional farm owners or operators and about 225,000 self-employed lawyers, dentists, and others.

"It provides for increased Federal funds to encourage better medical care for the needy aged, blind, disabled, and dependent children. This will help meet a critical problem for these groups.

"Another Administration proposal placed increased emphasis, in public assistance programs, on services to help more needy people build toward independence. The law initiates new programs of grants to train more skilled social workers and to support research in ways of helping people overcome dependency. Another Administration proposal will increase funds for child welfare services.

"The law also includes provisions about which the Administration had serious reservations in their initial form; these provisions were modified and improved before their final enactment and now meet, in part, some of the Administration's objections.

"The original proposal to lower the retirement age for all women was changed to provide that employed women and wives may accept reduced benefits at an earlier age or obtain full benefits at age 65. I am hopeful that this provision will now have no adverse effect on employment opportunities for older women. The law allows full benefit at age 62 for widows because of their special needs.

"Congress also modified somewhat the original proposal to provide disability benefits at age 50 or above. A separate trust fund was established for the disability program in an effort to minimize the effects of the special problems in this field on the other parts of the program—retirement and survivors' protection. We will, of course, endeavor to administer the disability provisions efficiently and effectively, in cooperation with the States. I also pledge increasing emphasis on efforts to help rehabilitate the disabled so that they may return to useful employment.

"The original proposal would have imposed a 25 percent increase in social security taxes on everyone covered by the system. I am pleased that the tax increase has now been cut in half. Our actuaries report that while they cannot estimate costs of the disability program with certainty, the tax increase should be adequate to finance the benefits, assuming effective administration.

"Although there were difference of opinion over separate provisions, the final legislation was approved overwhelmingly by Congress. In signing this legislation, I am hopeful that this new law, on the whole, will advance the economic security of the American people."

Physicians are expected to be called upon soon to help qualify thousands of disabled workers for early social security payments, under a revised program.

The task was assigned to the medical profession in a new Act of Congress H.R. 7225 which allows disabled workers to start collecting social security checks at age 50 instead of 65.

For more than two years the AMA and other medical organizations fought the bill with every weapon at their command. They argued it would be "virtually impossible" for physicians to determine eligibility, and it would be costly to taxpayers, as well as a step toward Federal control of medicine.

Key Role for MDs

But the Senate overrode their objections and voted 47 to 45 to adopt the disability payments proposal approved earlier by the House.

The new legislation amending the basic social security law is expected to apply to more than 250,000 disabled workers over 50. Physicians are assigned a key role in determining eligibility. Among other things, an applicant for such disability payments must:

1. Prove he is "unable to engage in any substantial gainful activity." "Substantial" is not defined.

2. Have a "medically determinable physical or mental impairment which can be expected to result in death or be of long-continued and indefinite duration."

3. Submit physician reports detailing diagnosis, history and clinical findings to establish the nature, severity and probable duration of the condition.

4. Accept any available state vocational rehabilitation services unless there is good cause for refusal.

5. Have a permanent disability at least six months before collecting any payments.

The legislation leaves it up to the Government to spell out the detailed eligibility procedure.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SOUTHWEST LOUISIANA GRADUATE MEDICAL ASSEMBLY

The 9th Annual Meeting of the Southwest Louisiana Graduate Medical Assembly will be held in Lake Charles, September 14-15. All physicians are invited to attend this meeting which is approved for Category I by the American Academy of General Practice. Presentations during the scientific sessions will include:

Oxygen Therapy, A. J. Ochsner, M. D., Chief of Anesthesiology at St. Francis Cabrini and Baptist Hospitals, Alexandria, La.

Roentgenology in Obstetrics, William Snow, M. D., Chief Radiologist, V. A. Hospital, Shreveport, La.

Antibiotic Diseases, J. H. Seabury, M. D., Professor of Medicine, L. S. U. School of Medicine, New Orleans, La.

Hazards of Steriod Therapy, Theo C. Panos, M. D., Professor of Pediatrics, University of Texas Medical Branch, Galveston, Texas

Acute Cholecystitis, James D. Rives, M. D., Professor and Head of Dept. of Surgery, L. S. U. School of Medicine, New Orleans, La.

Surgery and the Cardiac, a panel discussion, Drs. A. J. Ochsner, J. D. Rives and T. C. Panos

The Differential Diagnosis of Fever, Theo C. Panos, M. D.

Roentgen Study of the Chest, with Special Reference to Emphysema, Atelectasis and Edema, William Snow, M. D.

Dermatologic Manifestations of some Systemic Diseases, Henry W. Jolly, Jr., M. D., Chief of Division of Dermatology, Our Lady of the Lake Sanitarium, Baton Rouge, La.

Pathological Physiology of Lower Nephron Nephrosis, J. F. A. McManus, M. D.

Rectal Bleeding, James D. Rives, M. D.

Pulmonary Mycoses, J. H. Seabury, M. D.

Differential Diagnosis & Initial Treatment of Cerebro-Vascular Accidents, Earl Rafes, M. D., Attending Neuro-Surgeon at Hotel Dieu and Baptist Hospitals, Beaumont, Texas

Also on the scientific program will be two CPC's and a Curbstone Consultation. Lt. Gov. Lether Frazer will be a guest speaker at the Saturday luncheon. A full range of social activities have been planned for attending physicians and their wives.

SOUTHERN MEDICAL ASSOCIATION'S GOLDEN ANNIVERSARY CELEBRATION

This celebration will be held at The Read House in Chattanooga October 2-3, 1956, exactly fifty years from the day, October 2-3, 1906, the Association was organized. This celebration will take place in Chattanooga and at the Read House where, on October 2-3, 1906, representatives from Alabama, Florida, Georgia, Louisiana, Mississippi and Tennessee met for its organization. Our own Dr. Dowling was elected Secretary-Treasurer which position he held for three years.

Louisiana has been honored with the Presidency four times—Dr. Isadore Dyer in 1911, Dr. Oscar Dowling in 1915, Dr. C. E. Bass in 1926 and Dr. Lucian A. LeDoux in 1948.

This celebration in Chattanooga on October 2-3 should not be confused with the Golden Anniversary Annual Meeting to be held in Washington, November 12-15.

Dr. Dwight H. Murray, President of the American Medical Association, will, with other medical celebrities, deliver addresses at the meeting.

This is an auspicious occasion and merits a large attendance from the respective sixteen States and District of Columbia now comprising the Association.

Why not mark your calendar and plan to attend this meeting on October 2-3? A grand program is being planned for your entertainment and enjoyment. Don't fail to meet us in Chattanooga.

ELASTIC SUIT DEVISED AS HYPOTENSION TREATMENT

The pattern of grandpa's red flannels has been altered slightly and used to make a pressure suit for people with a serious type of low blood pressure.

The tight-fitting suit, made of elastic cotton-rayon knit material, applies pressure over the lower half of the body and helps prevent a patient with orthostatic hypotension from fainting when he stands up. For some it allows a return to work or enables standing for longer periods on the job.

The garment is described in the May 12 Journal of the American Medical Association by Herbert O. Sieker, M. D., John F. Burnum, M. D., John B. Hickam, M. D., and Kenneth E. Penrod, Ph. D., of the departments of medicine and physiology, Duke University School of Medicine, Durham, N. C.

Orthostatic hypotension—sometimes called postural hypotension—results from the inability of peripheral arteries to constrict and maintain enough pressure to force the blood back to the heart. The condition may be associated with diabetes mellitus or may follow a sympathectomy, an operation to relieve excessively high blood pressure. In other cases its cause is unknown. A person with the disorder is all right as long as he is lying down, but when he stands, there is a sudden drop in blood pressure and he becomes faint.

CONSULTANT SAYS SECOND COUSINS MAY MARRY

A medical consultant recently contradicted the notion that all cousins who marry will have defective children.

In a query to the Journal of the American Medical Association, a physician asked if it would be wise for a girl to marry her second cousin—the grandson of her father's brother.

The unnamed consultant said in the May 12 Journal that it would be all right—if the ancestry on both side for three generations was sound physically, intellectually and emotionally.

The danger to any offspring of a marriage between cousins of sound ancestry would not be much greater than if the parents were unrelated, he said.

HAZARDS OF HAIR BLEACHING ARE OUTLINED

In becoming a blonde the peroxide way, a woman stands the risk of losing many of the most prized properties of her hair, the secretary of the American Medical Association's committee on cosmetics warned.

Mrs. Veronica Conley said in the May issue of Today's Health, published by the A.M.A., that a woman must answer three questions before bleaching her hair. They are: Will her skin blend well with blonde hair? Can she afford the added professional care? Is her hair sufficiently healthy and sturdy to stand the assault of a bleaching agent without disastrous damage?

Mrs. Conley pointed out that no matter how pretty a particular shade of blonde hair is on one person, it may not be on another. Complexion and hair must complement one another. Treating the hair with peroxide most often produces a harsh yellow shade, particularly unflattering to all but the very young. Adding a hair dye of suitable shade in the blonde range softens and refines the harshness of peroxide, but the strain on the hair is considerably increased when it is subjected to two hair-coloring processes, she said.

OPEN TREATMENT OF BURNS

The open method of burn therapy has significant advantages, John Calvin Weeter, M. D., believes. He says this method prevents maceration of tissues "with the danger of subsequent infection." Also is open therapy, "the crust actually amounts to a heat-sterilized patch of tanned skin which acts as a protective barrier over the viable tissue beneath." Other advantages are freedom from "cumbersome dressings and freedom of movement."

Dr. Weeter discusses in the **Journal of the Kentucky State Medical Association** (54:155 (Feb.) 1956) his own technic in treating both third and second degree burns with emphasis on the necessity for early debridement and grafting.

In preparation for grafting, he recommends that the open wound be covered with fine mesh gauge impregnated with Furacin Soluble Dressing (Eaton) "because of its inhibiting effect on the common bacterial skin contaminants." In reference to donorsite care, he says that an effective method "is the application of Furacin impregnated fine mesh gauge placed next to the open wound."

Dr. Weeter is from Louisville, Ky.

POTASSIUM AMINOSALICYLATE

Five out of six tuberculosis patients intolerant to paraaminosalicylic acid (PAS) or its sodium salt are able to take the potassium salt now being marketed by Eli Lilly and Company as Pulvules 'Paskate' (Potassium Aminosalicylate, Lilly).

The new form of this therapy thus enables as high as 94 percent of all tuberculosis patients to take it without the extreme nausea, vomiting, and diarrhea that limit the usefulness of PAS in its other forms.

Clinical tests show that because of its greater solubility 'Paskate' gives higher blood concentrations of PAS than equal doses of sodium PAS. Also, 'Paskate' contains no water or hydration and, hence, provides, gram for gram, 11 percent more PAS for absorption than does NaPAS.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

A MESSAGE FROM THE AUXILIARY CONSULTANT

Mrs. Arthur A. Herold, Sr.

I would like to tell you a few facts about your National Auxiliary. I say "Your" advisedly, for it depends upon you as to whether or not your National Organization will be successful with its program. Your National Auxiliary has gained world wide recognition and it is now considered one of the most influential of the various women's organizations. National can only plan programs and projects; it is, however, the State and Parish organizations that must put these into effect.

Our National Auxiliary now has a membership of over 72,000, but the A. M. A. has a membership of well over 122,000. This is a fertile field for those of you who have organizational ability. It is not only important to contact the wives of practicing physicians, but also the wives of residents and interns. We should begin early to indoctrinate these women with the feeling that it is a privilege to belong to our groups. It is a select group, for in order to be eligible for membership, one has to be the wife or widow of a physician. Explain to these prospective members that their husbands, by virtue of their profession, occupy a position in their community unequaled by that of any other group; therefore, the day they become the wives of physicians they came more or less into the lime light, and what they do and say may have pleasant or unpleasant repercussions on the parent organization as well as on their own.

This year, National is stressing the needs of the medical schools. The Special Committee to promote this program is called, as you know, the American Medical Education Foundation. This committee needs you to make the lay public realize how necessary it is to support the medical schools in order to prevent the federal government from assuming the responsibility. The nurse recruitment program is very important and should be enlarged to include occupational therapists, medical technologists, medical social workers and physical therapists. There is an alarming shortage in all of these fields. Of course, there is always the legislative program that needs careful study so that we may be able to correctly interpret it to the general public.

Keep your national organization informed of all your activities; National is interested and eager to know what you are doing. If you do this, you may also help her to pass on to other auxiliaries worthwhile experiences as well as valuable information.

As all of you know, the Auxiliary on all levels is dear to me and please believe me when I say everyone of you is important to the medical auxiliaries; they need you and want you as active members not as idle by-standers.

Note: Mrs. Herold is also Parliamentarian for The Woman's Auxiliary to the American Medical Association.

Mrs. Mildred G. Carter,
Publicity Chairman, Woman's
Auxiliary to the LSMS

Courtesy of: **News and Views**

—o—

BOOK REVIEWS

Vaginal Hysterectomy, Indications, Technique and Complications; by Laman A. Gray, M. D., Springfield, Illinois, Charles C Thomas, 1954, Pp. 137, Price $4.75.

The author introduces the book as written for the operator who undertakes vaginal hysterectomy at intervals but does not do so many that he is an expert.

The various sections deal with the history of development of vaginal hysterectomy, indications, preoperative preparation, postoperative care, complications, and a long list of references.

ADOLPH JACOBS, M. D.

The Practice of Dynamic Psychiatry; by Jules H. Masserman, M. D., Philadelphia, Pa., W. B. Saunders Co., 1955, Pp. 790, Price $12.00.

This massive book is written in Dr. Masserman's facile, literary style which matches well his goal of expressing in one volume the psychiatric interview, the syndromes of behavior disorder, the clinical aspects of psychiatry vis a vis the jurist, etc., and clinical therapy. He covers a vast number of ancillary and corallary topics copiously illustrated by cases.

This is a text serving primarily the psychiatrist, in training and in practice, but the excellent chapters on the psychiatric examination, techniques of history taking and the mental status examination might be of interest to the general practitioner. It can certainly be recommended as a reference book of high value. The bibliography itself is quite valuable.

IRVIN A. KRAFT, M. D.

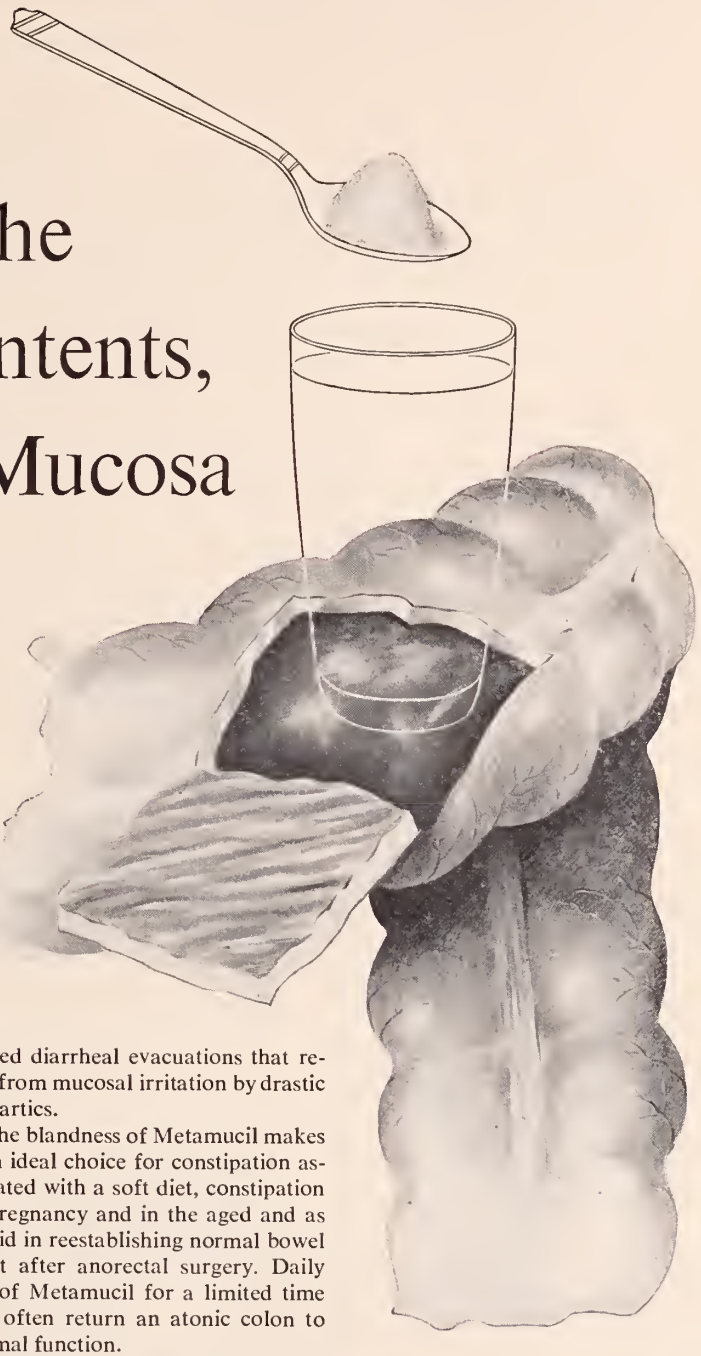
PUBLICATIONS RECEIVED

Paul B. Hoeber, Inc., N. Y.: Diagnosis and Treatment of Peripheral Vascular Disorders, by David I. Abramson, M. D.

Charles C Thomas, Publisher, Springfield, Ill.: Ulcers of the Legs, by P. Piulachs, Chief Professor Surgeon in the Faculty of Medicine of Barcelona, (dedicated to Dr. Rudolph Matas); Natural Childbirth, by H. B. Atlee, M. D.

CORRECTS MOST TYPES OF CONSTIPATION

Metamucil® Blends with the Intestinal Contents, Soothes the Mucosa



Metamucil is highly refined; it stimulates the bowel musculature, not the mucosa.

When you specify Metamucil in constipation management you are selecting a product which has been made at least 99.6 per cent pure through a complete process of refinement.

All possible irritants (rough parts of the psyllium seed, undesirable oils and similar materials) are discarded during the refining process. A relatively small quantity of purified mucilloid powder is the result. To this is added an equal weight of pure anhydrous dextrose to insure complete dispersion in the colon.

Such meticulous preparation assures that only the bulk-producing mucilloid portion of the psyllium seed remains and that Metamucil will act as a purely "physiologic" constipation corrective, providing bland distention to stimulate the bowel muscularis.

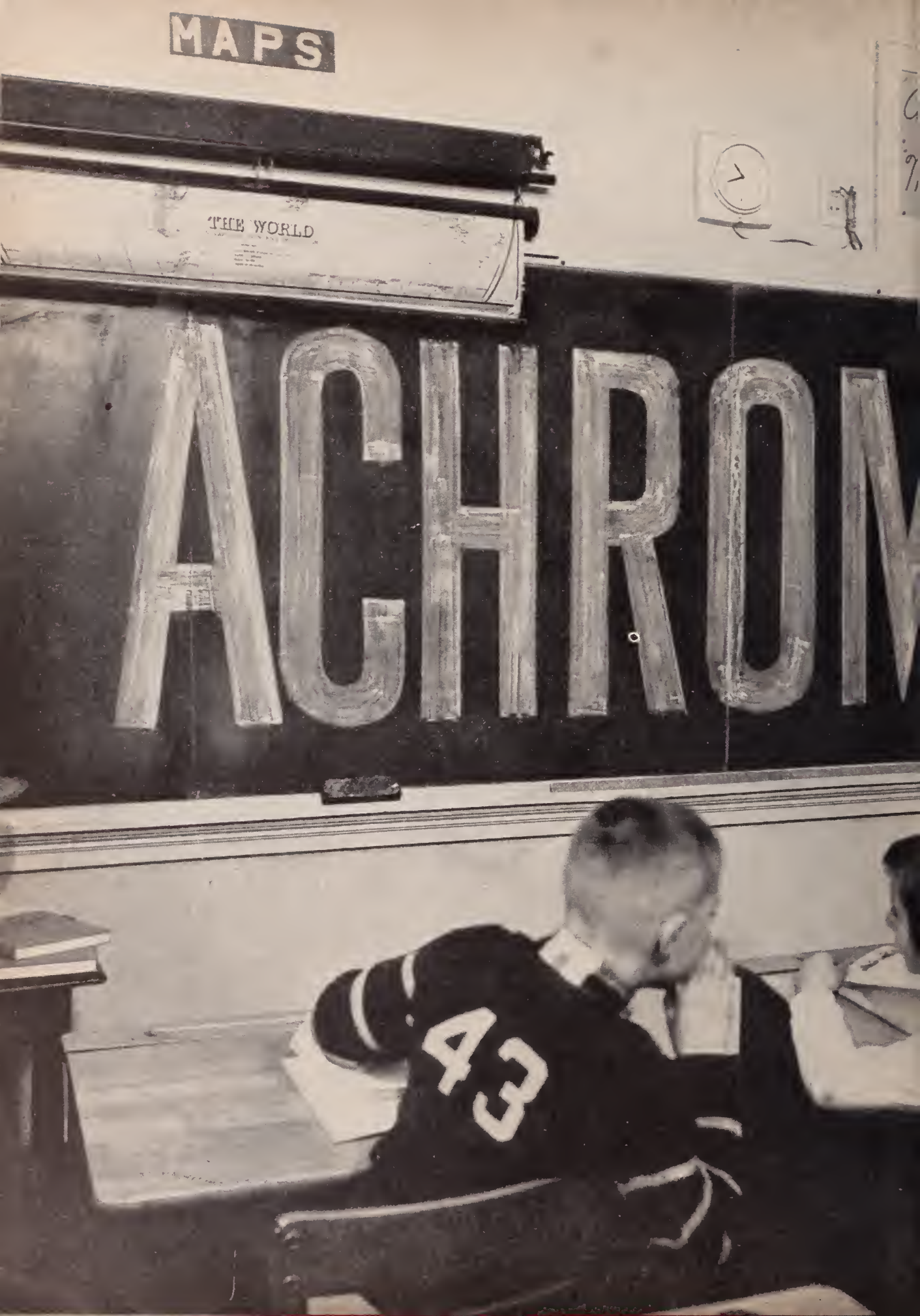
The Metamucil mixture (formed by adding water to Metamucil) elicits gentle colonic reflex peristalsis. Evacuations are normally formed and are not irritating. The bowel stimulation imparted by Metamucil is only sufficient to clear the colon of its contents; patients are not annoyed by the repeated diarrheal evacuations that result from mucosal irritation by drastic cathartics.

The blandness of Metamucil makes it an ideal choice for constipation associated with a soft diet, constipation of pregnancy and in the aged and as an aid in reestablishing normal bowel habit after anorectal surgery. Daily use of Metamucil for a limited time will often return an atonic colon to normal function.

Metamucil® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. It is supplied in containers of 1 pound—also 4 ounces and 8 ounces.

G. D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

SEARLE


MAPS
THE WORLD
ACHROM
43



ACHROMYCIN*

Tetracycline *Lederle*

in the treatment of

respiratory infections

January and his associates[1] have written on the use of tetracycline (ACHROMYCIN) to treat 118 patients having various infections, most of them respiratory, including acute pharyngitis and tonsillitis, otitis media, sinusitis, acute and chronic bronchitis, asthmatic bronchitis, bronchiectasis, bronchial pneumonia, and lobar pneumonia. Response was judged good or satisfactory in more than 84% of the total cases.

Each month there are more and more reports like this in the literature, documenting the great worth and versatility of ACHROMYCIN. This antibiotic is unsurpassed in range of effectiveness. It provides rapid penetration, prompt control. Side effects, if any, are usually negligible.

No matter what your field or specialty, ACHROMYCIN can be of service to you. For your convenience and the patient's comfort, Lederle offers a *full* line of dosage forms, including

ACHROMYCIN SF

ACHROMYCIN with STRESS FORMULA VITAMINS. Attacks the infection—defends the patient—hastens normal recovery. For severe or prolonged illness. Stress formula as suggested by the National Research Council. Offered in Capsules of 250 mg. and in an Oral Suspension, 125 mg. per 5 cc. teaspoonful.



For more rapid and complete absorption. Offered only by Lederle!

[1]January, H. L. et al: Clinical experience with tetracycline. *Antibiotics Annual* 1954-55, p. 625.

Lederle

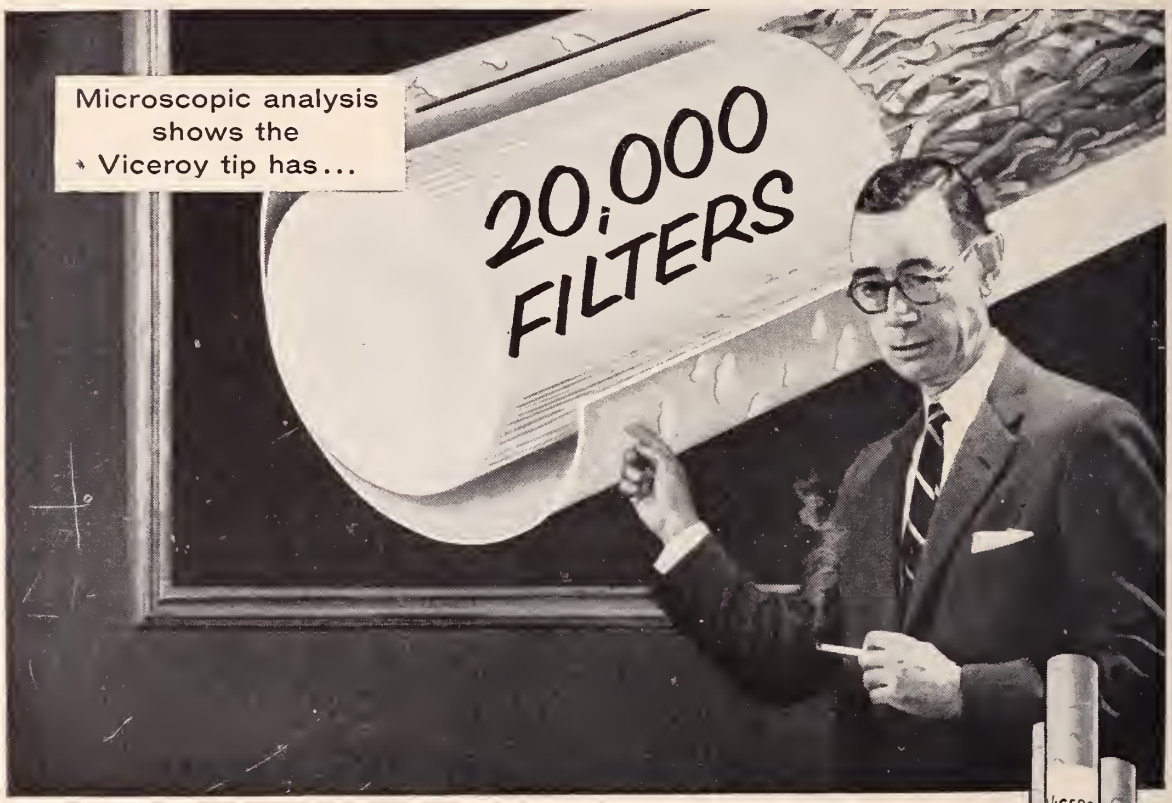
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*REG. U. S. PAT. OFF.

PHOTO DATA: 8 X 10 VIEW CAMERA—WIDE ANGLE LENS, F.32, 1/10 SEC., FLOODS AND SPOTS, ROYAL PAN FILM.

HERE'S WHY SO MANY DOCTORS NOW SMOKE AND RECOMMEND

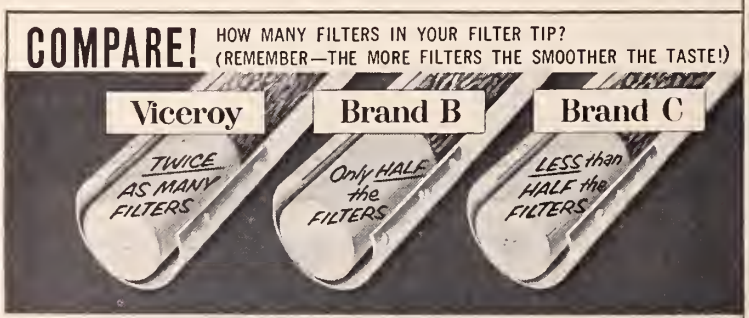
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AS THE OTHER TWO LARGEST-SELLING FILTER BRANDS

For the Smoothest Taste in Smoking!



VICEROY'S EXCLUSIVE FILTER IS MADE FROM PURE CELLULOSE—SOFT, SNOW-WHITE, NATURAL!



Upjohn

Rheumatoid arthritis, rheumatic fever, intractable asthma, allergies . . .

Cortef* *tablets*

Supplied:

5 mg. tablets in bottles of 50
10 mg. tablets in bottles of 25, 100, 500
20 mg. tablets in bottles of 25, 100, 500

*REGISTERED TRADEMARK FOR THE UPJOHN BRAND OF HYDROCORTISONE (COMPOUND F)

The Upjohn Company, Kalamazoo, Michigan

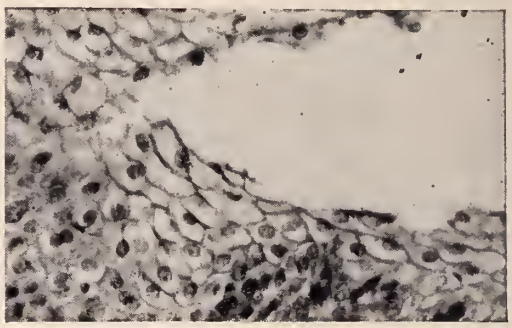


HOW VAGISEC LIQUID

PENETRATES

RECESSES OF VAGINA AND EXPLODES TRICHOMONADS OFTEN MISSED

Photomicrograph of section of epithelium of normal vaginal mucosa, enlarged 750 times, shows uneven surface where trichomonads bide. VAGISEC penetrates surface and explodes organisms in hard-to-reach areas.



TOO OFTEN AN ORDINARY trichomonacide fails to cure vaginal trichomoniasis because it has little or no effect on parasites that are not on the surface.[1] Trichomonads burrowed deeply into the roughened mucosa survive and set up new foci of infection. In fact, even a few hidden trichomonads remaining after treatment can cause acute exacerbations. With VAGISEC® liquid and jelly you can overcome this most troublesome problem.

Penetrates thoroughly — This new and unique trichomonacide spreads out and wets the entire vaginal surface. It rapidly dissolves mucinous materials, fats and blood clots.[1] It penetrates the cellular debris that lines the vaginal walls and shields the parasites, reaching trichomonads deep in their hiding places.

Explodes trichomonads — VAGISEC liquid actually explodes trichomonads within 15 seconds after douche contact.[2] Two surface-acting agents and one chelating agent combine to weaken the cell membrane, to remove the waxes and lipids, and to denature the protein. With its cell wall destroyed, the parasite imbibes water, swells and explodes. All this occurs within 15 seconds. Only scattered fragments remain.

Proves highly effective — With the Davis technique† you can now rid patients of "trich," even cases that have resisted other treatment. VAGISEC liquid was developed as "Carlendacide," by Dr. Carl Henry Davis, M.D., noted gynecologist and author, and C. G. Grand, research physiologist.[1] Clinical trials by more than 150 physicians show better than 90 per cent success.[3]

Use liquid and jelly — In the Davis technique, VAGISEC liquid is used in office therapy. At the same time, liquid and jelly are prescribed for home use. They are well tolerated, leave no messy discharge or stain.

Office treatment — Expose vagina with speculum and wipe walls dry with cotton balls. Then wash thoroughly with a 1:100 dilution of VAGISEC liquid. Remove excess fluid with cotton balls. Dr. Davis recommends six treatments.

Home treatment—Patient douches with VAGISEC liquid every night or morning and then inserts VAGISEC jelly. Home treatment is continued through two menstrual periods, but omitted on office treatment days. Douching contraindicated in pregnancy.

One course of treatment—"If the treatment has been accomplished as directed," the patient "will have no flagellates provided the infection was limited to the vaginal canal . . . A few women have infected cervical, vestibular or urethral glands and require other types of treatment."[4] Continued douching with VAGISEC liquid two or three times each week for eight to twelve weeks helps prevent re-infection.

Prevents coital re-infection — Infected husbands are ". . . a potential source of re-infection in wives successfully treated."[5] Prescribe for your patients the protection afforded by Schmid high quality prophylactics. Specify the superior RAMSES® rubber prophylactic, transparent, tissue-thin, yet strong. If there is anxiety that rubber might dull sensation, prescribe XXXX (FOUREX)® prophylactic skins, of natural animal membrane, pre-moistened.

Active ingredients in VAGISEC liquid: Polyoxyethylene nonyl phenol, Sodium ethylene diamine tetra-acetate, Sodium dioctyl sulfosuccinate. In addition, VAGISEC jelly contains Boric acid, Alcohol 5% by weight.

References: 1. Davis, C. H., and Grand, C. G.: Am. J. Obst. & Gynec. 68:559 (Aug.) 1954. 2. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955. 3. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955. 4. Davis, C. H. (Ed.): Gynecology and Obstetrics (revision), Hagerstown, W. F. Prior, 1955, vol. 3, chap. 7, pp. 23-33. 5. Lanceley, F., and McEntegart, M. C.: Lancet 1:668 (Apr. 4) 1953.

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1. Martin, W. J., et al.: J.A.M.A. *160*:928 (March 17) 1956.

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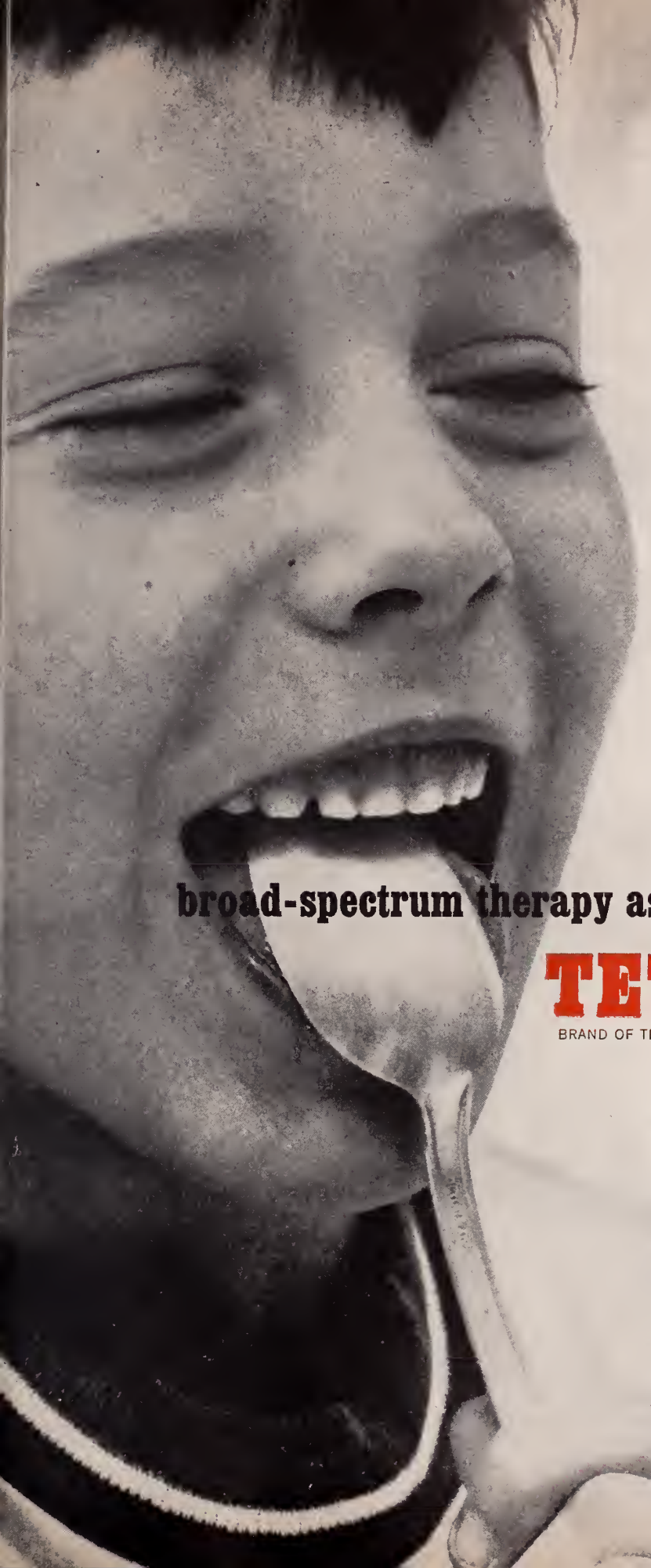
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*Modell, W.: The Relief of Symptoms, Philadelphia, W. B. Saunders Company, 1955, pp. 265-266.

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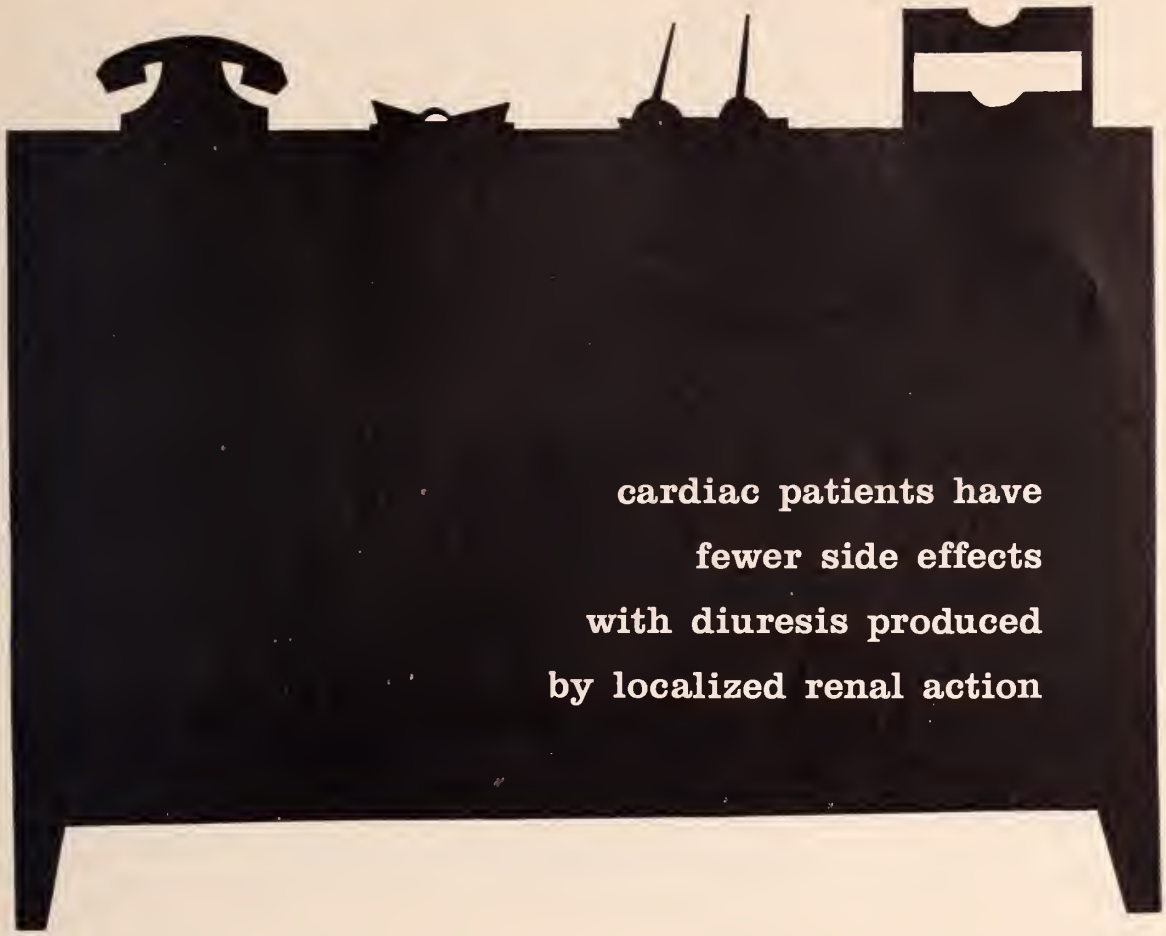
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*Bonica, J.J.; and Backup, P.H.: Northwest Med., 54:22, Jan. 1955.

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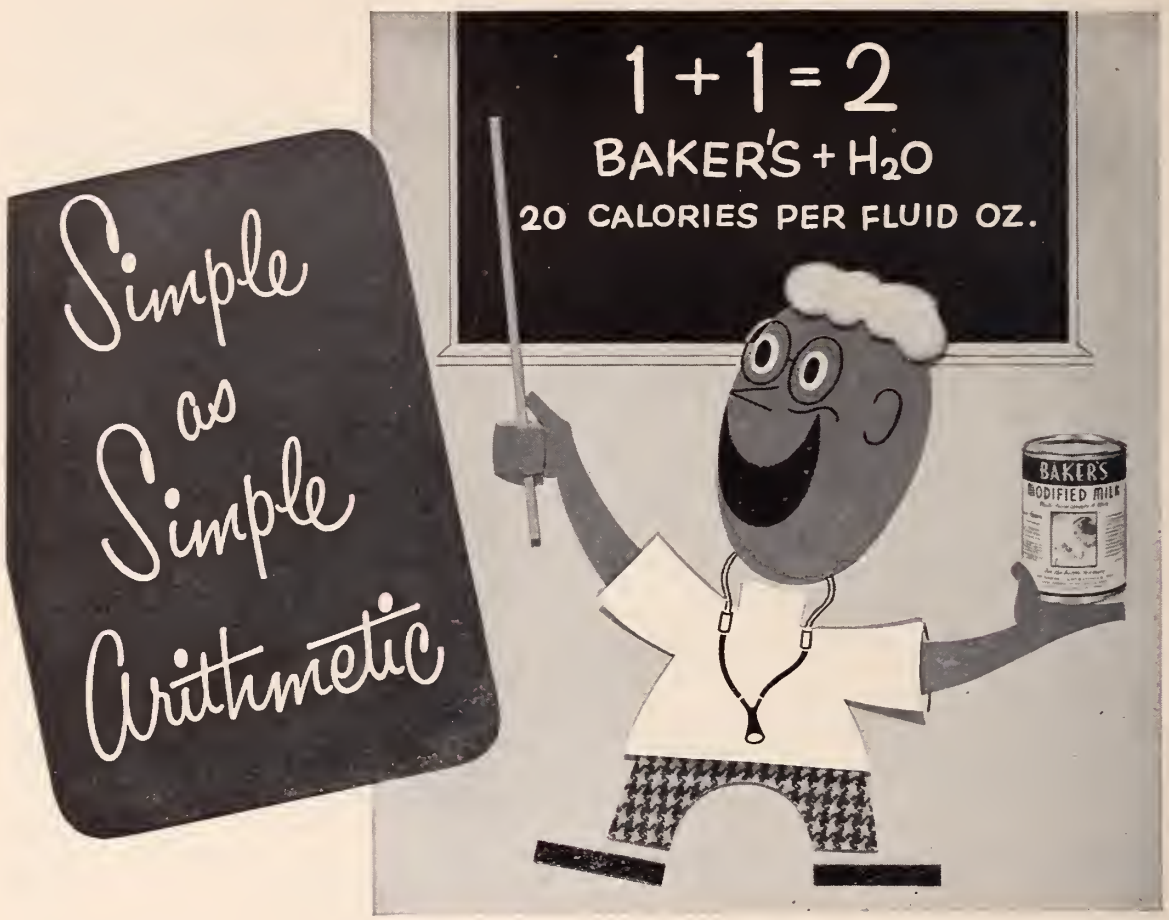
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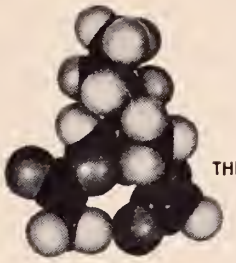
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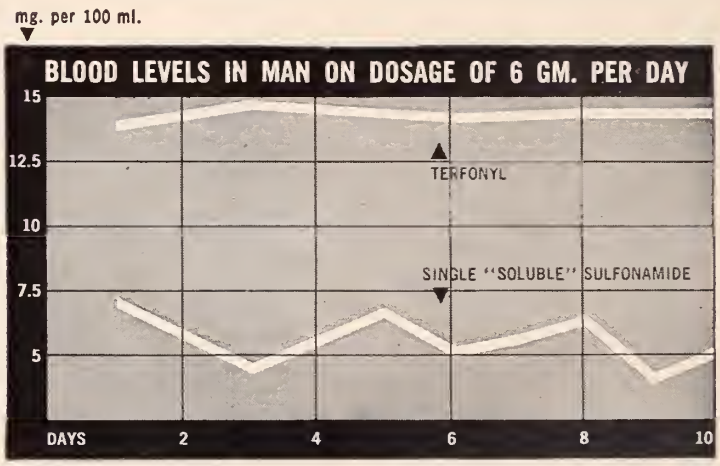
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– After Lehr, D., Modern Med. 23:111 (Jan. 15) 1955.

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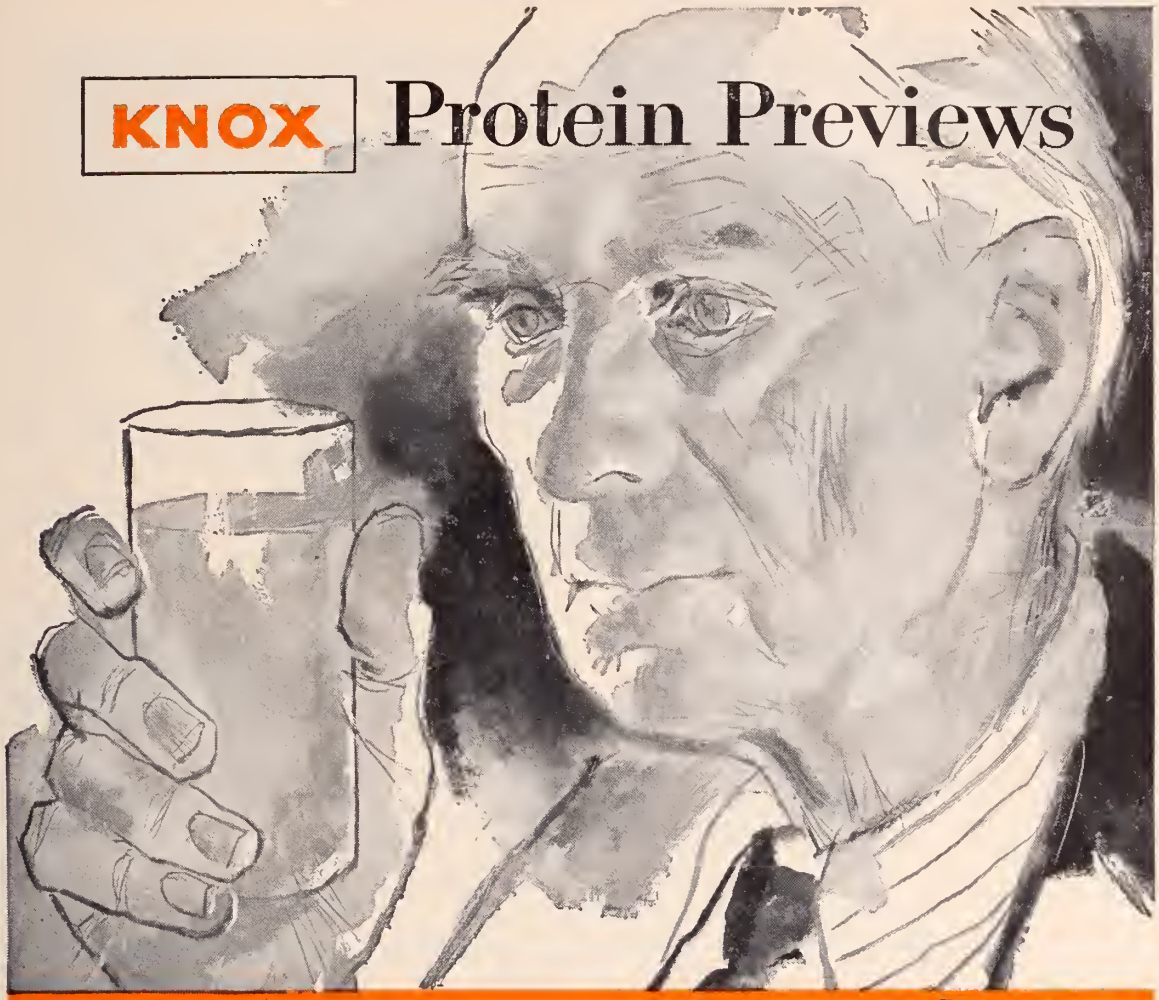
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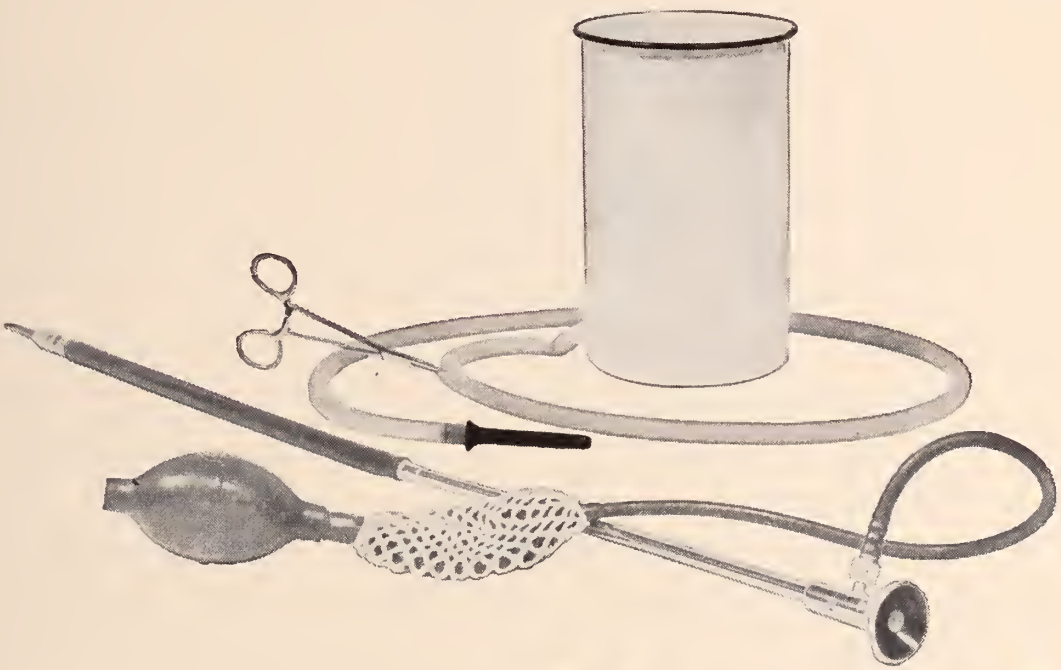
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1. Odel, H. M.: Nutrition in Cardiovascular Disease, in Wohl, M. G., and Goodhart, R. S.: Modern Nutrition in Health and Disease, Dietotherapy, Philadelphia, Lea & Febiger, 1955, p. 709.

2. Berg, C. P.: Utilization of Protein, J. Agr. & Food Chem. *3*:575 (July) 1955.

3. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice, ed. 6, Baltimore, Williams & Wilkins, 1955, p. 638.

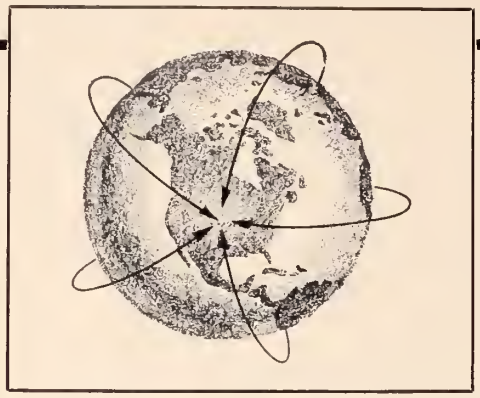
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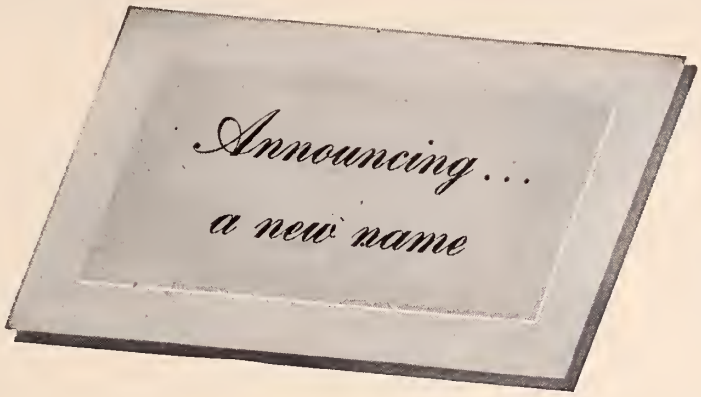
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1. Wikler: The Use of Chlorpromazine as an Anti-emetic in Children, Arch. Pediat. *72*:197 (June) 1955.
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Listed below are the states with the highest poliomyelitis case rates per 100,000 population for the period January 1 through August 11, 1956. The corresponding rate for the United States through August 11 was 3.8.

Louisiana	12.2
Utah	11.3
Nevada	9.8
Texas	9.6
Illinois	9.3
California	9.0

Report of Polio situation in Louisiana based on presumptive diagnosis January 1 to September 4, 1956

	No.	Vaccinated	Non-vaccinated
Report of cases to date	440	43	397
Paralytic	308	23*	285
Bulbar (included in paralytic)	35	1	34
Deaths (included in paralytic)	14	—	14
Non-paralytic	126	18**	108
Reports proven not to be polio	6	2	4

*Includes two cases whose onset was 1-3 days prior to inoculation.
**Includes one case whose onset was 3 days prior to inoculation.

Cases - 1955	234	22	212
Paralytic	154	8	146
Non-paralytic	80	14	66

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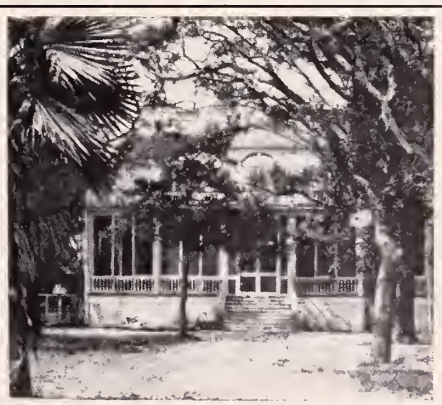
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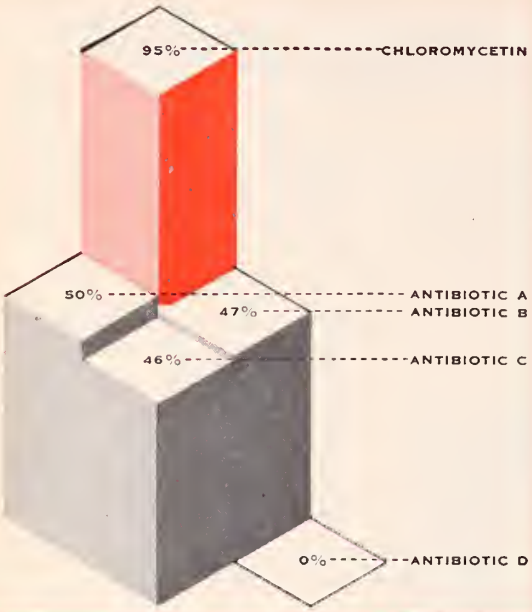
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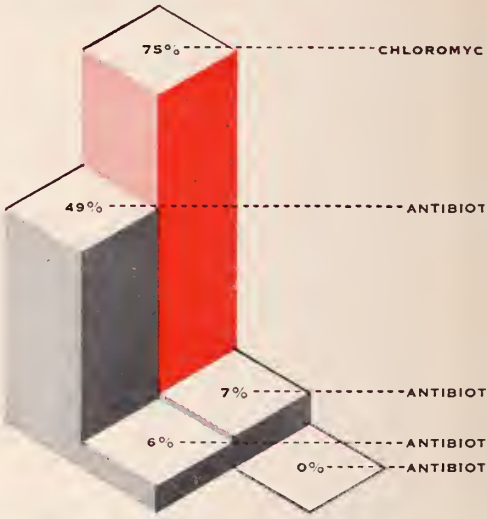
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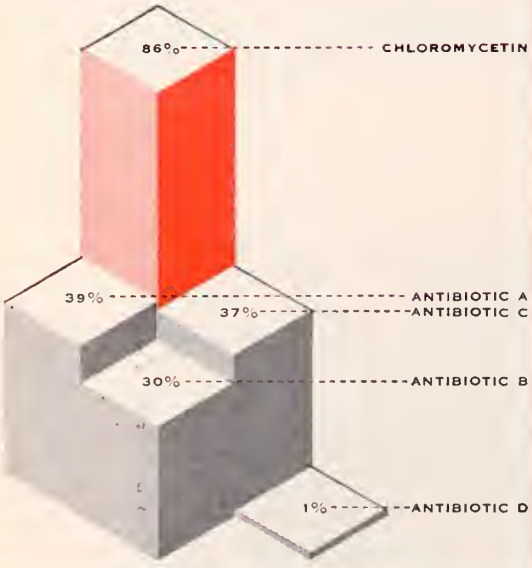


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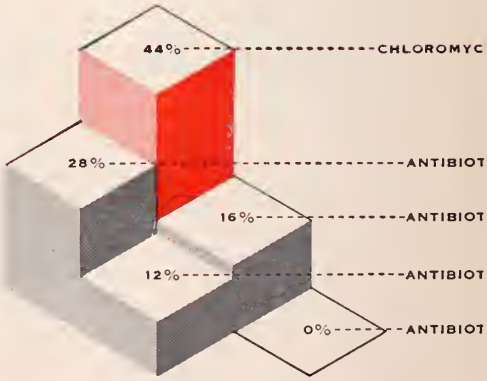


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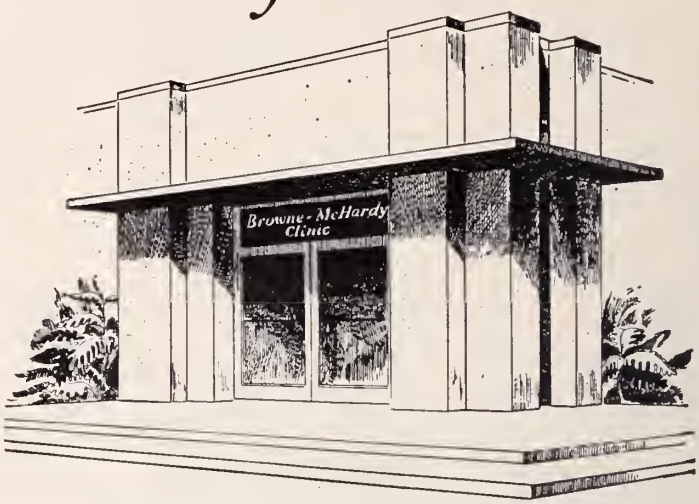
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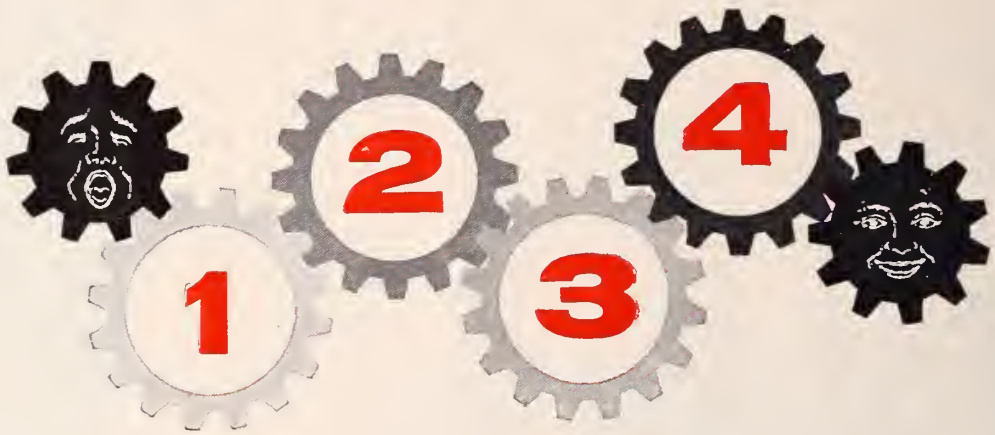
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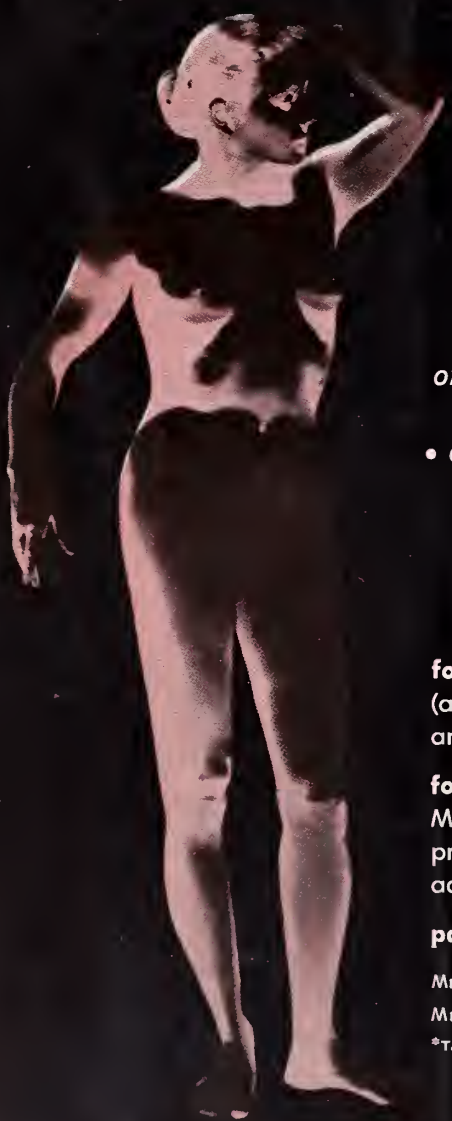
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THE ARTERY BANK AND ARTERIAL GRAFTS
PART II. ARTERIAL GRAFTING *

REICHARD KAHLE, M. D. †
NEW ORLEANS

Since arterial grafting involves the question of an artery bank as well as consideration of the problems associated with use of the grafts themselves, it was believed desirable to consider the subject in two parts. The first part, which discussed artery banks and methods of collection and storage, appeared in a previous issue of the Journal.[1] A basic knowledge of the physiology, function and fate of such grafts is obviously pertinent to this discussion. These, together with the indications, results and future of arterial grafting will be considered in the second part. Case summaries will be used to illustrate some of these points.

INTRODUCTION

Gross, Bill and Peirce[2] initiated the modern era of arterial grafting in 1949, when they reported use of homologous arterial grafts in 15 human beings. In view of the pioneering efforts of Alexis Carrel [3-6] in this field early in the present century, it is surprising that clinical use of arterial grafts had not developed more rapidly prior to 1949. The reason for the delay was neither lack of technical knowledge nor failure to appreciate the vast surgical possibilities that arterial grafting presents, because Carrel possessed both knowledge of the technical fundamentals and a vivid and prophetic imagination as to their possible uses. Had modern mehods of anesthesia for thoracic surgery and antibiotic and chemotherapeutic drugs been available earlier, undoubtedly the story of arterial grafting would have been different.

TYPES OF GRAFTS

Three kinds of vascular grafts are used: autogenous, homologous and heterologous. An autogenous graft is one taken from one part of an individual's body to be used in another part. A homologous graft is one taken from another animal of the same species. A heterologous graft is one in which the donor is an animal of a different species. Also, vascular grafts may be arterial or venous, or they may be fabricated of a foreign substance, such as a plastic (nylon, dacron or orlon). Finally, experimental evidence indicates that under certain circumstances it may be possible to induce a host to develop his own endothelial lined tube which could be used as a graft.[7]

FUNCTION AND FATE OF ARTERIAL GRAFTS

In regard to arterial grafts two questions almost invariably are asked. The first is whether or not a living graft is necessary and the other concerns its ultimate fate.

Viability—In the early days of renewed interest in arterial grafting, a living graft

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was believed to be desirable, if not a necessity. Gross and associates[2,8] devoted much time and thought to development of a proper nutrient medium. By using a modified Tyrode's solution, they found that viable cells could be cultured from the graft as long as thirty-five to forty days after storage. Gradually, however, it became apparent that a living graft was not necessary. Indeed, results of some experimental studies seem to indicate that a dead graft may be less likely to become thrombosed than a living one damaged by collection and storage.[9] It has been shown, for instance, that platelets and intima possess similar electrical charges. With injury, the electrical charge of the endothelial cells of the intima may be reversed. Rather than repelling each other, then, the intimal cells and platelets having opposite charges would attract and might initiate development of a thrombus.

The low incidence of thrombosis in larger homologous grafts is perhaps surprising but even more amazing is the persistence of patency in grafts made from foreign materials, such as nylon, orlon, or dacron. The tremendous rate of flow through larger vessels undoubtedly plays a part in keeping the vessel open, since the incidence of thrombosis is much higher in vessels smaller than the aorta and iliacs. The fact that the new vessel rapidly becomes lined with a smooth endothelial-like substance also helps to prevent occlusive thrombosis. In a matter of hours the inner surface of a homologous graft or of a plastic prosthesis, such as orlon, placed in contact with the moving blood stream, becomes covered with a smooth fibrin-like substance that serves eventually as a scaffold for the growth of new intimal cells.

Intimal cells grow from the ends of the host vessels to form a new lining for adjacent portions of the graft. In longer grafts, however, the intima of the central portion is not derived from this source but rather from the ingrowth of endothelial cells through the wall of the homograft or the interstices of the plastic cloth.

Fate—Much of the fundamental investigation on the fate of homografts has been done by Hufnagel and Eastcott[10] and Deterling and associates.[11-13] As might be expected from Carrel's original description, the graft acts as a scaffold for the ingrowth of new fibrous tissue. In approximately six months the smooth muscle and elastic fibers are replaced by fibrous connective tissue. In view of this it is not surprising that after a period of time grafts lose much of their elasticity. This fact should not be used to condemn their use, since in the majority of instances, they perform their function well and are usually far superior, even with the passage of time, to the patient's own diseased vessels. The chances of the graft outliving the patient are excellent, since life expectancy in the age group in which a graft is commonly indicated probably is considerably reduced.

The case of C. S., a white man 59 years old, illustrates this point. He had a thrombosed aortic bifurcation (Leriche's syndrome), which was replaced by a homologous arterial graft at Ochsner Foundation Hospital, on June 14, 1955. Pulsations in the pedal vessels were restored and remained good throughout the remainder of the patient's life. He died on Feb. 12, 1956, as a result of extensive plasma cell myeloma. At autopsy the graft, which had been inserted eight months previously, was grossly normal and resembled a normal aortic bifurcation. The intima of the aorta and of both iliacs was smooth and glistening, and the vessels were widely patent (Figure 1). On microscopic examination the walls showed the expected fibrosis but the functional utility was perfect.



Figure 1.—(Case C. S.): Luminal surface of aortic graft nine months after insertion. Note smooth intimal lining.

Since arterial grafts have been in extensive use in human beings for less than

seven years, no one knows their ultimate fate fifteen to twenty years following grafting. Dilatation and calcification may occur but this need not be a deterrent to use of this life saving measure. The possibility of dilatation and the tendency to thrombosis can be greatly reduced by proper matching of the diameters of the host vessel and the graft, care being taken to avoid constriction at the suture line or dilatation at any point. The importance of this has been stressed by Schmitz and associates.[14] The lucid explanation by Holman [15] of the hemodynamic factors causing dilatation distal to a stenotic area in the vascular system is also pertinent to this problem.

INDICATIONS AND RESULTS

Aneurysms—The rising incidence of arteriosclerotic aneurysms due to increased life expectancy is probably more than compensating for the decreasing incidence of syphilitic aneurysms, which has resulted from the extensive use of penicillin early in the disease. Management of aneurysms is therefore more than an academic problem. Furthermore, the prognosis of these lesions, if untreated, is extremely poor. Kampmeir,[16] for instance, reported that only 18 of 633 patients with syphilitic thoracic aneurysms were alive two years after initial symptoms.

The brilliant work of DeBakey and colleagues [17-21] in the resection and replacement of abdominal and thoracic aneurysms has brought new hope to patients with these lesions. In a recent publication they [17] reported an extremely low mortality rate and gratifying results in the surgical treatment of 35 patients with thoracic and 101 with abdominal aneurysms.

Our more limited experience with these lesions bears out the encouraging results that can be obtained in their treatment by grafting For example:

L. D., aged 50 years, came to the Ochsner Clinic in April 1954 for treatment of midabdominal pain, which had been present for a number of years and was becoming progressively worse. Examination showed an expansile pulsation in the area of the aortic bifurcation which measured approximately 9 by 7 by 5 cm. The aneurysm was resected on April 30, 1954, and the diseased aorta was replaced by a bifurcation graft. The patient has resumed driving his taxicab and has had no impairment of circulation in the lower extremities since the operation.

If it is at all possible, the patient's artery should be used to restore continuity. In the case of aneurysms this can only occasionally be done. However, this is particularly important if the vessel is medium sized, since the incidence of thrombosis in grafts of smaller vessels is appreciable and since it may be expected to be increased if the graft must traverse a flexion crease of an extremity.

An interesting case of popliteal aneurysm that illustrates both employment of the patient's vessel and the value of a graft is that of

J. M., a Negro man 64 years old, who was admitted to Charity Hospital in New Orleans March 14, 1956, with bilateral popliteal aneurysms. The one on the right measured approximately 13 by 12 by 5 cm. and the necrotic skin over the apex gave warning of imminent rupture. At operation, on the night of admission, the aneurysm on the right was resected. This left a gap of only about 4 cm. between the ends of the popliteal artery but the ends could be approximated without too much tension by partial flexion of the knee. It was decided to do this rather than place a graft in the medium sized artery. Circulation in the leg was excellent. The patient's leg was extended beginning on the twelfth postoperative day. Convalescence seemed uneventful but on the thirty-third postoperative day there was profuse hemorrhage from the right popliteal area. It was assumed that the suture line had given away because of tension, but at exploration the source of hemorrhage was found to be the popliteal artery about 3 cm. above the suture line, which was intact. There was a blow-out resembling a mycotic aneurysm (Figure 2). Presumably, this was due to rupture of the arterial wall from the clamp that had been used in the original operation. Review of the record also suggests that infection was present even at the time. The ruptured artery was resected and the defect was bridged by a femoral artery homograft measuring 4 cm. Circulation in the leg was excellent.

Resection of aneurysms of the thoracic aorta and replacement with arterial homografts is a relatively new step in the definitive treatment of this condition. Unlike the case in coarctation, collateral circulation in thoracic aortic aneurysms is not well developed. For this reason, provision must be made for maintenance of blood supply to the spinal cord while the aorta is cross



Figure 2.—(Case J. M.): Mycotic aneurysm of popliteal artery. A 4 cm. segment of the artery was resected and replaced by a homologous graft.

clamped to perform the anastomosis. A temporary shunt may be used, as suggested by Schafer and Hardin.[22] We have employed this method in the laboratory and on one patient but use of hypothermia, as suggested by Cooley and DeBakey,[23] seems simpler and technically safer in most instances in which the period of occlusion need not be too extensive.

The latter method was used in the case of Mr. G. C., aged 53 years, who complained chiefly of intense pain in the epigastrium boring through to the back. Aneurysmal dilatation of the thoracic aorta with erosion of the bodies of the eighth and ninth thoracic vertebrae was demonstrated roentgenographically. The result of the serologic test for syphilis was positive. On May 14, 1956, the patient was operated on at Baptist Hospital. Body temperature was reduced to approximately 86° F. by packing in ice. An incision was made through the bed of the eighth rib and a segment of the descending aorta measuring approximately 12 cm. in length and containing the aneurysmal sac, which measured about 10 by 8 by 5 cm., was removed. The cavity in the vertebral bodies that formed the lining of the sac posteriorly was packed with gelfoam. Recovery was uneventful except for a transient rise in the nonprotein nitrogen level. The patient's blood nitrogen level prior to operation had been elevated and operation had to be delayed until this tendency to uremia ‡ had been controlled. When last seen about two months postoperatively, the patient was relieved of the boring epigastric pain and circulation in the lower extremities was normal.

‡ Medical management by Dr. Kenneth G. Nix.

Vascular Obstruction—In addition to aneurysms, obstruction of the larger and medium sized vessels due to arteriosclerosis may, in many instances, be best treated by arterial grafting. Thrombosing aortic bifurcation, for instance, is best treated by resection of the abdominal aorta and replacement with a graft.[24] In instances of segmental obstruction in the smaller arteries, such as the femoral, however, use of a by-pass shunt without resection of the obstructed segment and resultant destruction of collaterals is attracting ever increasing attention.[25]

Several cases are cited to illustrate a number of points that are relevant to this phase of the subject. The first is an example of patency of a bifuraction graft for over two years with relief of symptoms of ischemia of the lower extremities due to arteriosclerotic obstructive disease.

Mrs. L. C., a white woman 51 years old, suffered from cold feet, claudication and weakness of the muscles of the lower extremities which prevented her from working. On May 14, 1954, at Ochsner Foundation Hospital the aortic bifurcation and both common iliacs were replaced with a homograft. She is able to walk without claudication, both feet are warm, her exercise tolerance is greatly increased, and she has returned to work.

The next case illustrates use of a double bifurcation graft to relieve ischemic symptoms of the lower extremities resulting from arteriosclerotic thrombotic disease. Prior to operation, Mr. G. C. a white man 55 years old, was forced to stop walking after taking only 100 steps because of cramping in the thigh and calf muscles. In May 1956, at Baptist Hospital, the abdominal aorta, was resected just below the inferior mesenteric artery and anastomoses were made to both external and both internal iliac branches. Pulsations to both dorsalis pedis and both posterior tibial arteries returned immediately and improvement in function has been dramatic. The patient now has no exercise "ceiling." Although not always feasible, use of a graft to restore flow to the internal iliacs as well as the external, as was accomplished in this case, is worth doing when possible.

The recent case of Mr. A. H., a white man 46 years old, illustrates the extent of resection that is sometimes necessary. He was operated on at Charity Hospital in New Orleans, on June 29, 1956. Bilaterally, the external iliac arteries were obstructed to just above Poupart's ligament at

the level of origin of the deep epigastric vessels. Proximally, when the aorta was divided just below the renal vessels, no flow was obtained. It was necessary to remove a plug of soft thrombus from the artery to obtain a normal flow. A bifurcation homograft approximately 20 cm. in length was used to replace these obstructed vessels from just below the renal arteries to the common femoral artery. Anastomoses were carried out to both external iliacs and to the internal iliac on the right, where it was necessary to perform thrombo-endarterectomy to get back flow.

Coarctation—Use of grafts to replace the resected segment of coarctation of the aorta which is so extensive that the remaining ends cannot be reapproximated by suture has been described by Gross.[8] A graft may also be necessary even if the coarctation is short if the patient is past the third decade of life, since the aorta near the coartation is often friable in these older patients and this might make suturing the vessel end to end technically difficult or impossible.

The case of Mr. E. B. illustrates this point. A diagnosis of coarctation was made at the age of 32 years, when, in search for a cause of his headaches, his physician noted that his blood pressure was 180 mm. Hg. systolic and 100 mm. Hg. diastolic in the upper extremities and 110 mg. Hg. systolic and 70 mm. Hg. diastolic in the lower. At Charity Hospital in New Orleans, on March 25, 1954, the coarctation was resected. To bridge the resulting defect it was necessary to use a graft 8 cm. long. The patient has resumed his occupation as a truck driver. His blood pressure is now 140 mm. Hg. systolic and 95 mm. Hg. diastolic in the left arm and 150 mm. Hg. systolic and 100 mm. Hg. diastolic in the right. Careful observation during the two years since operation has shown no evidence of dilatation or calcification in the graft.

Cancer Surgery — Arterial grafts may play an important role in the progress of the surgical treatment of cancer. If, for instance, the factor that precludes completion of an otherwise satisfactory radical neck dissection is carcinomatous involvement of the common or internal carotid artery, the vessel may be sacrificed and replaced by a graft. Expeditiously done, the graft will prevent the occurrence of cerebral damage and possibly death secondary to loss of a carotid.

Injury—Extensive arterial trauma is not uncommon even in the civilian population. If the laceration of the arterial wall is clean and incisive with no ragged or traumatized edges, or if the gap in the vessel is not too great after resection of the traumatized arterial section, the method of choice is primary repair without a graft. This is true, even if the injury has not been recently sustained. Obviously, insertion of a graft in repairing an artery that is unquestionably expendable is meddlesome surgery. This implies, of course, knowledge of the arteries that may or may not be sacrificed. The experiences of Jahnke and associates [26-29] in the Korean War have served to emphasize this fact. In 34 cases of major vascular injuries treated by primary repair or vein graft, amputation was necessary in only 3.

Only recently has use of an arterial graft in the treatment of an arteriovenous aneurysm received attention, since often the continuity of the artery can be restored by the transvenous route, as emphasized by Matas.[30] Furthermore, the extensive collaterals that develop in time usually permit ligation of the main arterial trunk should repair not be feasible. The value of grafts in arteriovenous fistulas has been emphasized by Seeley and associates' [31] experience with Korean casualities. The following case illustrates the fact that occasionally an arterial homograft may be of service in the management of arteriovenous communications in civilian life.

R. R., a 14 year old boy, accidentally injured his left brachial vessels on Dec. 5, 1955, when a linoleum knife slipped and penetrated his forearm just below the bend of the elbow. Apparently the injury to the vessels was overlooked by the intern who gave him emergency treatment. He was referred § two months after injury because of a rapidly enlarging, pulsating swelling in the left forearm. The radial pulse on this side was barely palpable, and obliteration of the pulsation in the mass by pressure caused the hand to turn cold, pale, and bluish. It was believed that the extremity distal to the vessels would be viable if ligation were done but that the blood supply would be greatly diminished and that growth might be disturbed if continuity were not restored. The rapid enlargement of the aneurysm made delay undesirable. The continuous thrill and murmur over the mass, the prominence of the superficial

§ By Dr. F. C. Boyce.

veins, and the warmth of the digits in the absence of a radial pulse gave evidence of the arteriovenous nature of the aneurysm. Branham's sign was elicited, the heart rate slowing six beats per minute on obliteration of the mass.

At operation on February 16, 1956, at Hotel Dieu it was found that transvenous reconstruction of the artery was technically impossible. Instead, a triangular patch of arterial homograft was inserted in the anteromedial surface of the brachial artery just above its bifurcation where a defect had resulted from the wound (Figure 3). The

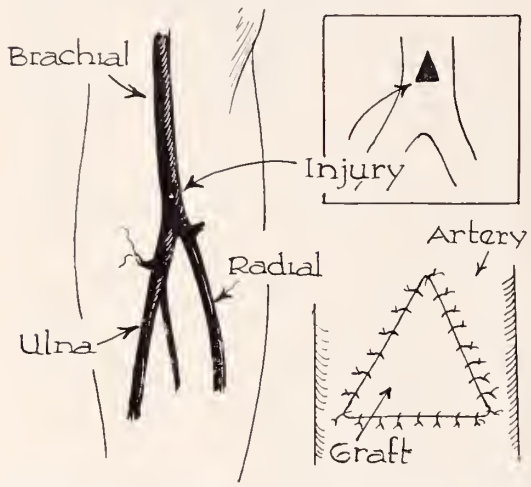


Figure 3.—(Case R. R.): Traumatic arteriovenous aneurysm of left brachial vessels. Defect in artery repaired by "patch" graft.

continuity of the artery was thereby maintained without constriction of its lumen, which undoubtedly would have occurred had the edges of the rent been approximated without the graft. Full radial pulsation returned immediately and has remained during the ensuing months. Function is normal.

TECHNIC

The necessity for careful ligation or suture of branches of the graft was emphasized in the section dealing with preparation of the graft. As in suture of all vessels, the adventitia is stripped from the vessel near the ends to be sutured. This avoids "dragging" of the suture and puckering of the edges of the vessel. Furthermore, adventitial tags, dragged into the lumen, could conceivably be the focal point for the origin of thrombosis.

Although there are theoretic advantages to an everting suture placing intima to intima, this classic vascular suture technic is not always used. More often, in the interest of time and facility, the simple over suture is used. This technic has withstood the test of time and is the one most popular, at least for aortic anastomosis.

Space does not permit a detailed description of the special instruments used in vascular surgery. Noncrushing clamps of various sizes, shapes, and designs are necessary as well as a knowledge of when and how to use them. Bulldog clamps designed on the principle of the Potts clamp are invaluable for working on the iliacs and other vessels in the pelvis.

THE FUTURE OF ARTERIAL GRAFTING

Plastic Grafts—Alexis Carrel long ago experimented with use of mechanical prostheses, such as paraffin lined glass and and aluminum tubes, to replace the aorta in in animals. The modern era, however, of the use of plastic substances to replace resected vessels may be said to have begun in 1952, with the report of Voorhees, Jaretski and Blakemore,[32] who described use of tubes of a plastic cloth known as Vinyon-N to replace the aorta in experimental animals. Since then, numerous reports on use of plastic "blood vessels" have appeared in the literature but the search for the ideal substance has not ended. In the laboratory of the Department of Surgery at the Tulane University School of Medicine we have experimented with vinyon-N, orlon, dacron, and nylon. From any of these substances a suitable vessel may be made but they offer certain disadvantages.

In order to serve satisfactorily these plastics must meet certain requirements. Obviously, they must be inert and must be non-wetting in order to discourage clotting. They must also be woven in such a way that leakage through the mesh is not excessive. Initially, in most of these plastics there is a tendency to exude blood but with the proper material this stops after a minute or two and a satisfactory channel results (Figure 4).

One of the most vexing problems has been the question of branching. Obviously, a bifurcation graft can be sewed as needed but this involves not only inconvenience but also the necessity of more luminal irregularity as a result of a longer and more



Figure 4.—Orlon tube used to replace abdominal aorta in experimental animal sacrificed at three weeks. Lumen patent and "intimal" surface smooth.

complex seam. The problem can be met by properly woven or knitted seamless grafts and considerable progress has been made in this direction.[33, 34] Textile manufacturers in general, however, have been reluctant to become involved, understandably, because the outlay for equipment is great, the financial return is negligible and most important, they could conceivably become involved in law suits in spite of the most humane of motives.

Unquestionably, "grafts" of plastic cloth lack normal elasticity. What the ultimate result of this might be is unknown but it is probably not important if used to replace relatively short vascular segments in older patients.

Like arterial homografts, they serve as scaffolds on which new tissue may grow. They become lined with intima in the same way and fibroblasts grow into the meshes of the material to form thickened, relatively normal appearing vessels. When animals in which we had replaced the abdominal aorta six months or more previously were killed, patent functioning vessels were found in a high percentage.

A problem presented by plastic grafts which is not of the same magnitude in homografts is that of development of kinking, compression and thrombosis in the area where these artificial vessels cross a flexion crease. The normal resiliency of homografts makes them more suitable if this contingency must be faced. Edwards,[35] however, has made an ingenious attempt to solve this problem. If the nylon "grafts" are crimped on a mold, the desired change in direction may be made without collapse of the tube. This is the same principle as that employed in the rubber hose of the ordinary anesthetic apparatus. Edwards [36] has also recently advocated use of these crimped tubes in replacement of peripheral arteries and believes that the stretch and pliability of these tubes permit success in these medium sized vessels in which straight tubes failed.

Although this is far too great an oversimplification of the matter of plastic replacement, the subject might be summarized by saying that in the absence of an adequate homograft, plastic grafts can be used in human beings, the incidence of thrombosis in the larger vessels is low but in medium sized vessels such as the femoral it is approximately 50 per cent, and the future with new plastics and new methods of manufacture of branching seamless arterial prostheses is promising.

Heterologous Grafts—Carrel's successful use of heterologous grafts in two exper-

imental animals would seem to have indicated long ago that the future might be bright for use of animal vessels to replace human ones. The abattoir would provide an obvious plentiful supply if this were true. Furthermore, Hufnagel [37] recently reported results of experimental studies that suggest the suitability of heterologous grafts and on this basis he used them in 4 human beings. On the other hand, experimental work by Creech and coworkers [38] indicated that they are not suitable. Heterologous grafts, however, have an important use as temporary shunts to carry sufficient circulation while extensive resection of the arch of the aorta and descending aorta is being carried out.[39, 40]

SUMMARY

At present the artery bank is the only means by which the availability of a suitable arterial graft can be assured. Grafts may be collected under sterile or asterile technic. Although delay is not desirable, as much as eight hours may elapse between death of the donor and collection of the graft. In regard to the age of the donor, the decision should be based solely on the physiologic rather than the chronologic, age of the artery. Patients who have died of a transmissible or malignant disease are not considered suitable donors of an arterial graft. Grafts may be stored by the quick frozen or freeze drying method.

Types of grafts include autogenous, homologous, and heterologous arterial or venous grafts, and plastic grafts. There is experimental evidence to suggest that under certain circumstances it may be possible to induce a host to develop his own endothelial lined tube which could be used as a graft. Use of a living graft is not necessary. Homologous grafts and plastic prostheses both serve as a scaffold for the ingrowth of fibroblasts which convert the structure into a less elastic but functionally satisfactory tube. A new intima is developed which is grossly indistinguishable from the normal.

Indications for arterial grafting include aneurysms of the abdominal or thoracic aorta, localized arteriosclerotic obstruction of the abdominal aorta as well as of the peripheral arteries, extension of radical cancer excision and repair of arteriovenous aneurysms. Illustrative case histories are included.

The future of plastic arterial prostheses is promising but the ultimate decision as to the best material and the long term fate of these "grafts" is not settled. Heterologous grafts probably should not be used.

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THE MALABSORPTION SYNDROME *

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The malabsorption syndrome, the sprue syndrome and jejuno-iliac insufficiency comprise a synonymous group of conditions characterized by impaired absorption of fat, carbohydrate, protein, vitamins, iron and calcium in the small intestine. As a consequence, malnutrition, steatorrhea, loss of weight, anemias, tetany and avitaminosis are predominant clinical manifestations.

Much of our current knowledge on the absorption of food is derived from a report of Munk[1] published in 1891. He made a series of observations on a young woman with a filarial chylous fistula, in much the same way as William Beaumont did on the stomach of Alexis St. Martin. Among several primitive fat-labeling experiments, he conclusively demonstrated that virtually all the fat which is absorbed enters the body by the lymphatic route. Since then it has been concluded that fatty acids of 10-carbon atoms or less are probably absorbed by the portal route; whereas the longer chain fatty acids, which make up the bulk of the dietary fatty acids, are absorbed by the lymphatic route.

The particular defect in the malabsorption syndrome appears to be fairly specific and cannot be explained on the basis of one single mechanism. It has been demonstrated experimentally in normal human beings that amino acids, glucose and fat compete in intestinal selective absorption.[2] These substances, in addition to essential minerals, vitamins, particularly the fat soluble vitamins A, D, and K, and water, are defectively or poorly absorbed by the intestines in patients with this syndrome.

For a discussion of the pathogenesis of the malabsorption syndrome the reader is referred to the recent thorough review of

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the literature by Paterson.[3] He listed the current opinions of the postulated defect in this condition as: intermediary metabolic disorder, intrinsic cellular defect, dietary or vitamin deficiency, motor dysfunction of the small intestine, and altered colonic bacterial flora. Actually, the basic etiology of sprue, for example, is unknown and the prevailing concept is that it is a deficiency caused by defective intestinal absorption due to an inborn error of metabolism.

CLASSIFICATION

A clinical classification of the malabsorption syndrome lacks both etiologic and pathologic relationships (Table 1). In

TABLE 1
CLASSIFICATION OF MALABSORPTION SYNDROME

- A. Primary sprue
  - 1. Celiac disease
  - 2. Nontropical sprue
    - a. Gluten-induced enteropathy
  - 3. Tropical sprue
- B. Pancreatogenous steatorrhea
  - 1. Cystic fibrosis of pancreas
  - 2. Chronic relapsing pancreatitis
  - 3. Carcinoma of pancreas
  - 4. Post-pancreatectomy
  - 5. Kwashiorkor
- C. Hepatobiliary steatorrhea
  - 1. Primary biliary cirrhosis
  - 2. Obstruction of common bile duct
- D. Intestinal steatorrhea
  - 1. Anastomotic syndrome
    - a. Resection of small intestine or stomach
    - b. Fistula: gastrojejunocolic fistula
  - 2. Diseases of small and large intestine
    - a. Benign and malignant neoplasms
    - b. Granulomatous disease: regional enteritis
    - c. Infiltrative disease: primary amyloidosis; scleroderma
    - d. Infections: tuberculosis
    - e. Stricture
    - f. Congenital: malrotation of gut
    - g. Antibiotic enterocolitis
  - 3. Diseases of mesenteric lymph nodes: Intestinal lipodystrophy; sarcoma
  - 4. Parasitic infestation; filariasis; diphyllobothrium latum
  - 5. Endocrinopathy; thyrotoxicosis; Addison's disease
  - 6. Pellagra

1940, Bennett and Hardwick, and later others, recognized a sprue-like condition in surgical short-circuiting of the small intestine, internal intestinal fistulas and intestinal lymphoma, among other diseases, and concluded that jejuno-iliac insufficiency, could be corrected surgically.

Occasional cases of nontropical sprue and most cases of celiac disease (Gee-Herter's disease) have been shown to be due to the presence of wheat gluten in the diet. As a result, a satisfactory therapeutic response has been noted only after a gluten-free dietary regimen. Many patients with nontropical sprue have had celiac disease in childhood. The predominant clinical differences between tropical and nontropical sprue, in addition to the geographic location, are, in the former, greater incidence in adults, generally refractory to a gluten-free diet but favorably responsive to oral or parenteral administration of folic acid, and occurrence in epidemic outbreaks or among members of the same family. The main areas in which tropical sprue is epidemic are the Far East, India, and the Caribbean region, but there are local differences in these areas, as for example, its occurrence in Puerto Rico but not in Jamaica. Steatorrhea persists even after the patient moves to a temperate climate. Some patients may show no response to administration of folic acid but recuperate dramatically when intestinal antibacterial therapy is instituted.

Pancreatogenous steatorrhea is associated with those conditions in which there is a deficiency of one or more of the pancreatic enzymes (Figure 1). Increased bacterial growth and fermentation occur, particularly in the colon as the result of undigested food. In our experience it has been one of the most common types of steatorrhea.

Hepatobiliary steatorrhea is a clinical manifestation of obstruction of the common bile duct due to such lesions as stones, stricture, or neoplasm and primary biliary (cholangiolitic) cirrhosis with or without xanthomatosis (Figure 2). Impaired absorption of fat and even protein occurs when bile is excluded from the intestinal tract. Bile salts are considered to be a most important biliary absorptive constituent.



Figure 1—Roentgenogram of the abdomen. Chronic relapsing pancreatitis. Calcification of the pancreas. Pancreatogenous steatorrhea.

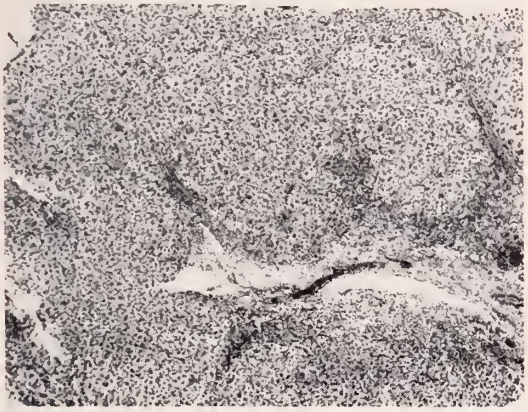


Figure 2—Hepatobiliary steatorrhea. Needle biopsy of the liver. Primary biliary cirrhosis with xanthomatosis. Chronic pericholangitis, bile stasis, and early nodular regeneration (H & E, X 60).

There are various types of intestinal steatorrhea. In most of them gross pathologic changes in the intestinal wall, short-circuiting of the intestinal contents or interference with lacteal transport of fat can be demonstrated. In this category the most prevalent problem of steatorrhea occurs in the patient with the anastomotic syndrome. Postgastrectomy steatorrhea, gastrojejunocolic or gastrocolic fistulas, and inadvertent surgical error of gastroileostomy are representative. In addition to the abnormal routing of chyme in these cases, it is possible that the steatorrhea may be related to the increased amount of intestinal coliform flora as seen in gastrojejunocolic fistula. Significant steatorrhea is seen rarely in the unusual case of "irritable bowel" and in advanced cases of thyrotoxicosis, diabetes mellitus, panhypopituitarism or adrenal insufficiency. Impairment of the lacteal transport of fat in patients with intestinal lipodystrophy (Whipple's disease), lymphoma, metastatic neoplasm and tuberculosis is another type of malabsorption syndrome. Severe pellagra, in patients whose diets consist exclusively of pork, molasses and corn bread, may simulate nontropical sprue.

CLINICAL MANIFESTATIONS

It is commonly believed that celiac disease[5] and nontropical sprue[6,7] represent different stages of the same disease. Both are characterized by chronic diarrhea without a demonstrable or significant pathologic or bacteriologic basis. Additional manifestations are emaciation, flatulence, intolerance to dietary carbohydrate and fat, and an abnormally great requirement for protein in the diet. Progressive malnutrition, steatorrhea, hypoproteinemia and hydrolability occur with the development of mineral and vitamin deficiencies and a negative nitrogen balance (Fig. 3a.).

Celiac disease is seen chiefly in children, although in some, symptoms have persisted into adulthood. Also, the disease may be latent in adolescence and symptomatic in adult life.[8] Not only are spontaneous remissions and relapses characteristic of sprue, but the disease may be latent. In the later instance there is no direct or initial evidence of intestinal malabsorption, but diarrhea, avitaminosis, megaloblastic anemia and spontaneous fractures may be the initial clinical features. The possibility of subclinical sprue should be considered in patients with refractory megaloblastic anemia, particularly younger individuals.

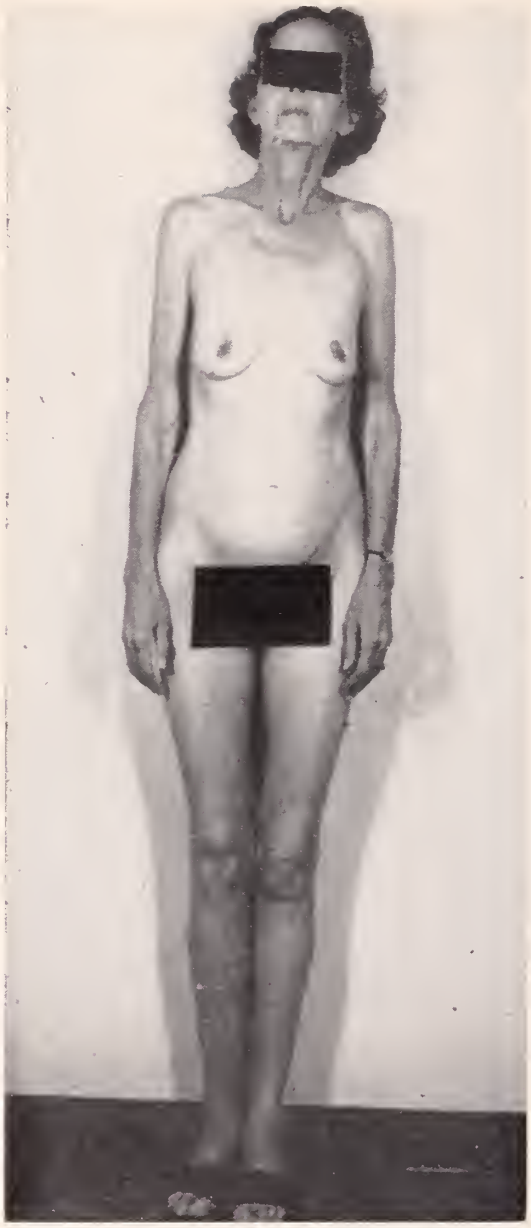


Figure 3a—Nontropical sprue. Emaciation, cutaneous melanosis, dry "toadskin".



Figure 3b—Same patient six weeks later having been on a therapeutic regimen consisting of a high protein, moderate carbohydrate, low fat diet, multivitamins, and a daily maintenance dose of 5 mg. U.S.P. prednisone twice daily.

Nocturnal diuresis, abdominal distention, edema of the ankles, low blood pressure, cutaneous pigmentation, clubbing of the fingers and koilonychia may be present. The alert, apprehensive or hypermetabolic appearance of patients with nontropical sprue is impressive. Many of them give the appearance of a "bird-perched-on-a-limb ready for flight" with their thin pointed noses and staring facial expressions as they sit unrelaxed ready for alarm.

Excessive steatorrhea leads to emaciation and loss of calcium and fat soluble vitamins. Creatorrhea, the fecal loss of protein, appears responsible also for emaciation, fatty liver, osteoporosis, hypoproteinemia, edema, hydrothorax, and ascites. Defective absorption of carbohydrates results in fermentation of the stool, dyspepsia, flatulence, bloating, and hypoglycemia. Almost all patients with the malabsorption syndrome, especially sprue, exhibit polyvalent vitamin deficiencies. Loss of vitamin A may cause night blindness, xerophthalmia, bronchitis and a roughened dry skin. Avitaminosis B may result in glossitis, cheilitis, blepharitis, nasolabial se-

borrhea, peripheral neuritis, diarrhea, pellagrous dermatitis and hypochromic anemia. Loss of vitamin C manifests itself by scurvy and slow healing of wounds. Rickets or osteomalacia is the result of avitaminosis D. Hypoprothrombinemia may develop as the consequence of loss of the fat soluble K in the stool, causing gastrointestinal hemorrhage. In severe cases there may be loss of calcium and phosphorus as well as tetany and osteomalacia.

Clinical manifestations of decreased blood and tissue calcium are noted in the physical signs of tetany: carpopedal spasm, Trousseau's sign, positive Chvostek's sign and muscular cramps. The failure of hypocalcemic tetany to occur in some cases of the malabsorption syndrome may be explained on the basis that as the serum protein concentration decreases so does the proportion of protein-bound calcium, leaving a higher, relative amount of ionized calcium. The skeletal manifestations of hypocalcemia and avitaminosis D include osteomalacia (Figure 4), rickets, dwarfism, lenticular opacities, spontaneous fractures and severe kyphosis.



Figure 4—Roentgenogram of the thoracic spine. Nontropical sprue. Marked osseous demineralization. Osteomalacia. Kyphosis.

Anemia is invariably present during some stage of the malabsorption syndrome. The loss of iron produces hypochromic, microcytic anemia early in the active phase of the disease. This may be aggravated by deficiency of vitamin B complex, hypothrombinemia due to deficiency of vitamin K, and decrease in the amount of stored vitamin C. In the later, quiescent phase, hyperchromic, macrocytic anemia results from defective absorption or excessive loss of folic acid or vitamin B_{12}. The absorption of iron may be impaired also by gastric histamine achlorhydria or hypochlorhydria as commonly observed in this syndrome.

LABORATORY FEATURES

We employ a steatorrhea-creatorrhea test diet in the study of patients having the malabsorption syndrome.[9] This consists of a daily diet composed of 101.6 Gm. of fat, 117.5 Gm. of protein, 269.6 Gm. of carbohydrate, and 2463 calories for five days. At the beginning of the third day and seventy-two hours later a carmine marker is ingested to mark the stool collection. The feces of normal persons in twenty-four hours contains: total solids, 13.6 to 39.1 Gm.; total fat, 1.8 to 6.7 Gm.; and total nitrogen 0.8 to 2.5 Gm. Following resection of 75 per cent of the small intestine for recurrent regional enteritis one patient had 60.4 Gm. of fecal fat and 8.7 Gm of fecal nitrogen in twenty-four hours while on the steatorrhea-creatorrhea test diet. A patient with nontropical sprue had a quantitative fecal fat excretion of 7.7 Gm. and fecal nitrogen excretion of 2.8 Gm. in twenty-four hours.

A flat oral glucose-tolerance curve is obtained in most cases of advanced primary sprue. This is most probably due to an absorptive deficiency, but because there may be a normal glucose tolerance curve in these cases when glucose is administered via duodenal tube, a gastric defect can be postulated.

We employ the intravenous secretin test

for the quantitative determination of pancreatic enzymes. By use of a Diamond tube introduced into the first portion of the duodenum under fluoroscopic guidance, the volume of the secretion and amounts of bicarbonate, trypsin, amylase and lipase are determined in three consecutive twenty minute collections after the cautious intravenous administration of one unit of secretin per kilogram of body weight. In pancreatic steatorrhea these substances are absent or present in small amounts; whereas normal amounts occur in other types of steatorrhea. Congenital fibrocystic disease of the pancreas may be differentiated more practically from celiac disease by the oily appearance of the stool, the presence of neutral fat rather than calcium soaps in the stool, a high glucose tolerance curve and association of parenchymal pulmonary cystic fibrosis.

Elevation of the basal metabolic rate, volvulus of the colon,[10] low serum carotene levels, flat oral vitamin A tolerance curve, low cholesterol and plasma lipid levels, and gastroscopic evidence of atrophic gastritis are additional laboratory observations in cases of the malabsorption syndrome.

ROENTGENOLOGIC FEATURES

Roentgenologic evidences of intestinal malabsorption include obliteration of the valvulae conniventes (Kerkring's folds) with smooth margins of barium-filled small intestine; sausage-like smooth, dilated, barium-filled loops of small intestine —the "moulage sign"; adherence of barium to the mucosa of the intestine after the bulk of this substance has passed the area giving it a feathery, fleck-like, flocculent appearance; dilatation of the involved loops of intestine; hypomotility of the intestine particularly with stasis and hypersecretion in the gastric and ileal areas; secondary megacolon, and finally, evidence of osteomalacia and osteoporosis (Figures 4, 5). A normal small intestinal pattern is seen infrequently in sprue and commonly in other types of the malabsorption syndrome. The "sprue pattern" is sufficiently characteristic radiologically to separate it from the heterogeneous group of conditions hitherto labeled as "deficiency pattern" or disordered motor function.[11] Even after proper therapy this pattern persists in patients with primary sprue.



Figure 5—Two hour roentgenogram of the small intestine in nontropical sprue. Moulage, segmentation, dilatation, and a feathery appearance.

TREATMENT

Treatment of the malabsorption syndrome depends upon the causative factor of the particular case. If the cause is intestinal stricture, enteric fistula, short-circuiting of the small intestine, extrahepatic biliary obstruction, pancreatic fistula, congenital malrotation of the intestine, regional enteritis, operable neoplasm, or surgical error, the treatment of choice would be surgical as determined by each individual case. Steatorrhea secondary to parasitic infestation and various metabolic diseases, as thyrotoxicosis, adrenal insufficiency, panhypopituitarism and diabetes mellitus, may resolve when the primary disease is treated specifically.

There are, however, certain general measures which may be employed in the management of patient's with the malab-

sorption syndrome. We use a "foundation diet" consisting of 2130 calories, composed of 45 Gm. of fat, 135 Gm. of protein and 300 Gm. of carbohydrate. During a symptomatic remission, or when additional caloric intake is required, a "full diet" may be employed in the amounts of 75 Gm. of fat, 140 Gm. of protein and 330 Gm. of carbohydrate making a total of 2540 calories.[12] Because of the excessive loss of calcium, 4 to 12 Gm. of calcium glucinate or lactate is administered by mouth in daily divided doses. Vitamins afford particular value, especially those that are fat soluble. These are administered conveniently in the amounts contained in the standard therapeutic multivitamins together with at least 5 mg. of vitamin K daily. Synthetic aqueous vitamin A in large doses is preferable to the fat soluble type.

Certain specific therapeutic measures are employed, particularly in patients with primary sprue. In pancreatic steatorrhea U.S.P. pancreatin tablets are recommended in a daily oral dosage of at least 10 to 15 Gm. Dilute hydrochloric acid is valueless in the adjunctive management of the malabsorption syndrome. Fat emulsifying agents, as Sorlate (R), may be employed in the dosage of 1.5 Gm. three times daily, but if the effects are unpredictable, oral administration of bile salts in hepatobiliary steatorrhea will produce dramatic reduction in fecal fat, particularly if the oral fat intake is adjusted to a moderately low but palatable level. When intestinal hypermotility or massive intestinal resection is responsible for steatorrhea, anticholinergic drugs may be necessary to impede intestinal hypermotility. We have found JB-340 * (25 mg. four times daily by mouth) to be the most effective available colonic anticholinergic drug.

Celiac disease and late celiac disease (gluten-induced enteropathy) may respond favorably to a wheat-gluten free diet.[3, 13, 14] Wheat and rye gluten are automatically eliminated from the diet of these patients, but it is important to insure that the intake of both calories and protein is necessarily high. As a result of this dietary regimen absorption of fat and nitrogen is increased within a few days and recovery is rapid. In patients with celiac disease this diet should be maintained until the child stops growing.

In tropical sprue administration of a sprue diet and 5 to 25 mg. daily of folic acid orally should be adequate.[15, 16] Symptoms are rapidly relieved, and roentgenologic and other laboratory abnormalities are corrected. If hematologic or neurologic remission is inadequate, crude liver extract, vitamin B_{12} or yeast should be included in the regimen. If this regimen fails to produce remission, removal of the patient to a more temperate climate[17] or institution of intermittent five day courses of an intestinal antibacterial drug is indicated. Any of the broad spectrum antibiotic agents, such as chloramphenicol or tetracyclin, may be administered orally or in various combinations in a dosage of 500 mg. three times daily for five days followed by succinylsulfathiazole in a dosage of 2 Gm. four times daily for five days.

More recently, prolonged administration of adrenocorticotropic hormone,[18] cortisone[19] or hydrocortisone has been demonstrated to induce a remission of nontropical sprue (Table 2). In nontropical sprue, intestinal lipodystrophy (Whipple's disease) and regional enteritis, amelioration of the primary disease, reduction of steatorrhea and improvement in the fat soluble avitaminotic state have resulted in dramatic clinical improvement (Fig. 3b.). Addition of steroid therapy to orally administered ferrous sulfate has corrected otherwise refractory hypochromic, microcytic anemia of the malabsorption syndrome.[20] Presumably, steroids help induce a great increase in the uptake of iron by the intestinal mucosal cells. Although the anemia may respond to administration of iron, iron and cortisone, liver extract, folic acid, vitamin B_{12} or intestinal antibacterial therapy, depending upon the type and phase of the disease, surgical correction of the existing pathologic lesion, for example,

* Kindly supplied by Dr. Harvey S. Sadow, Associate Director of Research, Lakeside Laboratories Inc., Milwaukee, Wisconsin.

TABLE 2
LABORATORY EVIDENCE OF REMISSION IN WOMAN 47 YEARS OLD WITH NON-TROPICAL SPRUE TREATED BY FOUNDATION SPRUE DIET, MULTIVITAMINS AND VITAMINS AND PREDNISONE

	Before	8 Weeks Later
BMR, %	+16	—6
Prothrombin, % of normal	42	100
Serum calcium, mg./100 cc.	3.3	4.7
Serum albumin/ Globulin, Gm./100 cc.	2.4/2.1	3.6/1.5
Stool Guaiac Reaction	positive	negative
Oral Glucose Tolerance Curve	Flat	Low
Serum Vitamin A, microgram/100 cc.	40	70
Histamine Gastric Analysis, Free HC1/ Total HC1, units	0/20	0/14
Stool Fat, Gm./24 hr.	17.2	7.2
Stool Nitrogen, Gm./24 hr.	4.8	1.4
Total Serum Lipids, mg./100 cc.	320	468
Hemogram	hypochromic microcytic anemia	Normal

stricture of the small intestine, will correct the anemia. Normal fecal fat levels are usually obtained in a patient with nontropical sprue receiving steroid therapy. Whereas in my experience the therapeutic results from folic acid, liver extract, or vitamin B_{12} have been nonspecific and erratic in patients with nontropical sprue in the northern part of the United States, my medical associates at Tulane University assure me that folic acid, in particular, has been effective in inducing symptomatic remission in patients in the southern sections of the country. It seems plausible that rather than a direct effect of adrenal hormones in fat absorption, more likely the small intestine shares in the general bodily improvement and that fat absorption improves together with the general restoration of normal metabolic processes in the entire body.

SUMMARY AND CONCLUSION

The malabsorption syndrome, jejunoiliac insufficiency and sprue syndrome comprise a heterogeneous group of diseases in which the intestinal absorption of important foodstuffs, minerals and vitamins is impaired. It is important that primary sprue be differentiated clinically from other types of intestinal steatorrhea and from pancreatogenous and hepatobiliary steatorrhea in order that proper treatment be selected. The recognition that celiac disease, which may be latent in childhood and symptomatic in adulthood, and certain cases of nontropical sprue respond favorably to a gluten-free diet is an important therapeutic advance. The specific use of adrenal steroids in other cases of nontropical sprue and intestinal lipodystrophy, and as adjunctive treatment in regional enteritis has led to effective symptomatic remission, especially in nontropical sprue. Treatment of tropical sprue consists primarily in use of folic acid or administration of antibiotic agents. In fact, recent studies disclosed that the increased coliform flora in both the small and large intestines of patients with the sprue syndrome explain at least in part the defective absorption of necessary food, mineral, and vitamin substances.

Addendum: The patient mentioned in Table 2 experienced a clinical relapse whenever steroid therapy was discontinued. Eventually, a gluten-free diet and therapeutic vitamins (twice daily) were prescribed solely. More marked clinical and biochemical amelioration than during steroid therapy has persisted for seven months.

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THE MECHANISM AND DIFFERENTIAL DIAGNOSIS OF ABNORMAL BLEEDING *

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For many surgeons, bleeding abnormally means that a ligature has come off or a clamp has slipped. Fortunately these mishaps can usually be remedied without much difficulty. On the other hand, hemorrhage in a patient who has had no surgery is potentially a difficult problem with myriad possible solutions. As an internist interested in hematology and allied fields, I shall present a medical discussion of the fascinating problem of the inability of blood to clot with a plan of attack in meeting such an obstacle.

The history is probably the most important means to determine whether the bleeding is caused by some local pathology such as ulcer, neoplasm, or infection or whether it is due to an abnormal vascular or coagulation mechanism. Almost never does a patient have massive or severe bleeding as the first manifestation of a generalized disease. Questioning will elucidate the fact that there has been easy bleeding or bruising in the past following minor trauma or occurring spontaneously. Every surgeon of any type or specialty can avoid serious misfortune by getting this past history.

VASCULAR ABNORMALITIES

Injury to large blood vessels of course causes hemorrhage (Table 1) and no more need be said about this except that the obvious treatment is to ligate or clamp the leaking vessels.

TABLE 1
CAUSES OF HEMORRHAGE

A.	Injury to large blood vessels.
B.	Vascular dysfunction.
	1. Hereditary telangiectasia.
	2. Senile purpura.
	3. Hypertension, diabetes, infections.
	4. Nonthrombocytopenic purpuras.
	a. Allergic purpura.
	b. Henoch's or Schoenlein's purpura.
	5. Scurvy.

Vascular dysfunction may include several different types of abnormalties. Hereditary telangiectasia occurs in both sexes and is a hereditary condition which consists of local angiomata, which have a deficient muscular and elastic layer. This condition is often absent in childhood and is not seen until later in life. These telangiectatic blood vessels occur in the skin where they are most often recognized but it is from the mucous membrane angiomata that the large hemorrhages occur in this condition.

Purpura or gross bleeding with large ecchymotic areas or hematomas under the skin occurs in older people merely from fragility of the blood vessels, usually the veins, with loss of supporting structure in the surrounding tissues. Characteristically this occurs only in the elderly patient.

Two obvious causes of hemorrhage include hypertension with its increased pres-

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sure in the blood vessels leading to easy bleeding, and diabetes which seems to have some definite effect on weakening blood vessel walls. Infectious diseases are prone to cause hemorrhage either by direct weakening of the capillaries or by depressing the platelet count.

Purpuras that have normal platelet counts, that is, non-thrombocytopenic purpuras, are often seen. The allergic type of purpura usually occurs in association with allergies and may occur with other skin manifestations or allergies such as erythema, wheals, bullae and other obviously allergic rashes.[1]

Henoch's purpura has been described as occurring mainly in children and adolescents. Usually gastrointestinal symptoms are present and colic often occurs. The bowel is edematous and red in segmental distribution. Joint symptoms may also occur in rare association with the gastrointestinal systems. Schoenlein's purpura is described as occurring in young adults and usually occurs as periarticular effusions. These may also be manifestations of an allergic disease.

Scurvy is vitamin C deficiency and occurs because there is a deficiency in the ground substance between the cells of the capillary walls with increased capillary fragility.

COAGULATION MECHANISM

Most of the remainder of this discussion will present the complicated and fascinating aspects of the coagulation of blood.[2, 7] The bare details (Figure 1) of the coagulation mechanism show in phase one, that tissue cells or platelets break down to liberate the platelet thromboplastic factor which is also named thromboplastinogenase. This platelet thromboplastic factor combines in some way with a plasma thromboplastic factor which is always present in the plasma, also called thromboplastinogen or antihemophilic globulin. In the presence of a plasma thromboplastic component and a plasma thromboplastic antecedent these substances form thromboplastin.

In the second phase, thromboplastin, calcium ions, and certain prothrombin conversion factors facilitate the formation of thrombin from prothrombin. The thrombin thus formed also acts to labilize platelets so that more platelets are broken down. The thrombin also acts to increase the

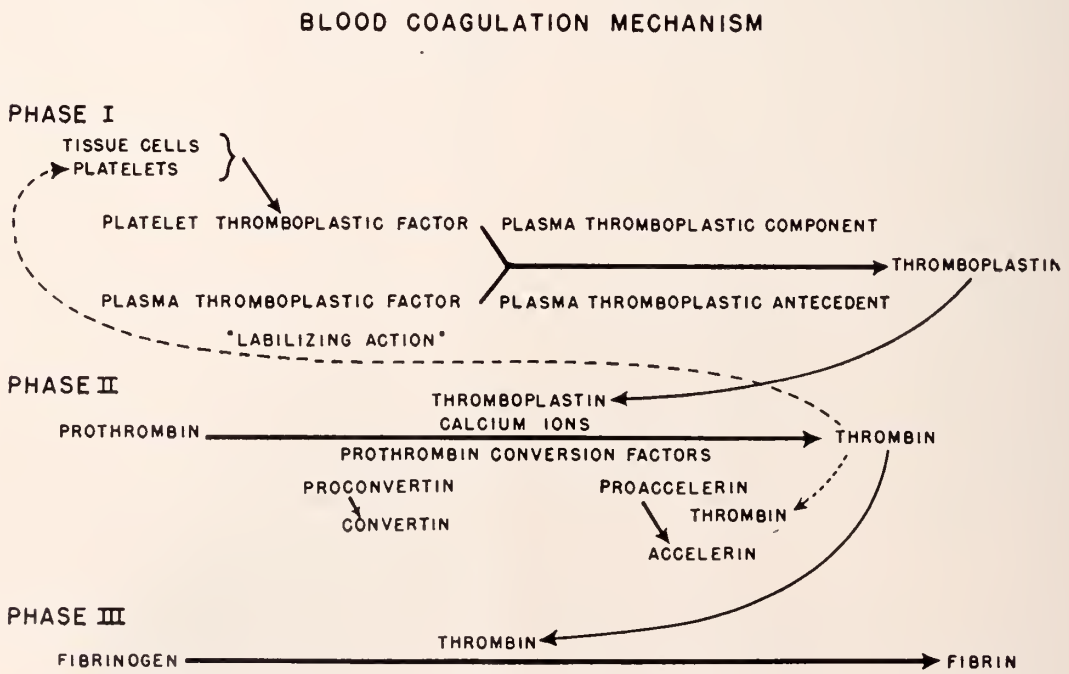


Figure 1. The blood coagulation mechanism. An abbreviated composite of the three phases of blood coagulation.

amounts of accelerating factors so that the speed of this reaction then becomes greatly quickened. With adequate amounts of thrombin thus formed fibrinogen is polymerized and formed into fibrin clot.

COAGULATION - PHASE 1

Let us discuss in detail the first phase of blood coagulation and then discuss various coagulation defects which may be found in the first phase. (Figure 2)

The platelets agglutinate and then lyse or become destroyed. The exact mechanism of this lysis is not entirely known and while it is precipitated by the contact of the platelets with a rough capillary wall yet there may be other factors which cause this disintegration of the platelet. As was previously stated the break-down of platelets is much accelerated by the formation of minute amounts of thrombin at the site of the blood clot formation. Thrombin may be always in the blood, inactivated by antithrombin. This platelet thromboplastic factor thus formed combines with a plasma thromboplastic factor which is otherwise called antihemophilic globulin or active thromboplastinogen. Quick[5] feels that thromboplastinogen must be activated before it can combine with the platelet thromboplastic factor, and that there is a certain circulating anticoagulant which may inhibit this activation of thromboplastinogen so that the disease acts like hemophilia but actually is not hemophilia. The plasma thromboplastic component which has recently been discovered is also a necessary element in this combination of the previous two factors to make thromboplastin. A plasma thromboplastic antecedent also has recently been described.

CLINICAL SYNDROMES - PHASE 1

We shall now consider in detail the various coagulation defects that occur in this first phase of blood coagulation with a few brief clinical remarks about each one. (Table 2) Platelet deficiency occurs in the well known idiopathic thrombocytopenic purpura. A circulating antiplatelet factor occurs in many patients and is thought to agglutinate the patient's own platelets as well as repeatedly transfused platelets. Hypersplenism has also been implicated, but fewer hematologists now support this theory of sequestration and destruction from hypersplenic activity alone. The disease may be acute and self-limited, particularly in children, and it often occurs after an upper respiratory illness in some. In chronic or recurrent thrombocytopenia bleeding will occur frequently. The spleen is usually small and not palpable. If the spleen is very large it is probably secondary throm-

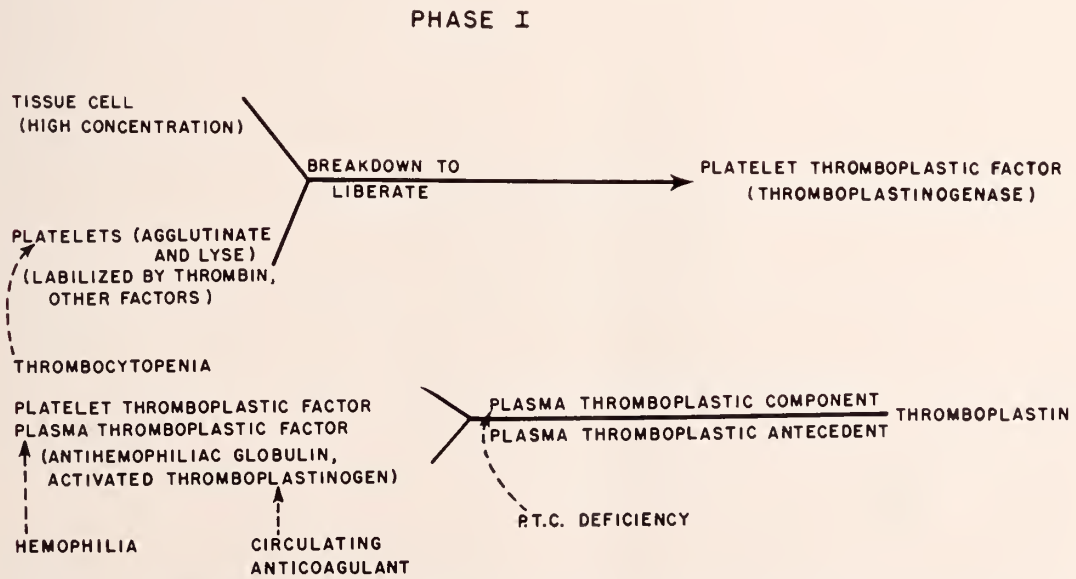


Figure 2. Phase I. Detailed presentation of steps involved. Conditions that inhibit or retard reactions are indicated by dotted arrows below the reaction.

TABLE 2
COAGULATION DEFECTS

- **A. Phase I.**
  - 1. Platelet deficiency
    - a. Primary thrombocytopenic purpura
    - b. Secondary thrombocytopenic purpura
    - c. Thombasthenia
  - 2. Plasma factor defects
    - a. Plasma thromboplastic factor (hemophilia)
    - b. Plasma thromboplastic component
    - c. Plasma thromboplastic antecedent
- **B. Phase II.**
  - 1. Prothrombin deficiency
    - a. Vitamin K deficiency
    - b. Liver disease
    - c. Anticoagulants
    - d. Congenital
  - 2. Calcium deficiency
  - 3. Prothrombin conversion factor deficiences
    - a. Proaccelerin to accelerin (AC globulin or labile factor)
    - b. Proconvertin to convertin (SPCA or stable factor)
- **C. Phase III**
  - 1. Afibrinogenemia
  - 2. Fibrinogenopenia
  - 3. Fibrinolysins

bocytopenia and not a primary thrombocytopenia. In the bone marrow the megakaryocytes are increased in idiopathic type of thrombocytopenia whereas in the secondary type the megakaryocytes may be decreased or absent. The use of ACTH or cortisone may cause remission of this condition, especially in children when it often shortens the course of the self-limited disease. Splenectomy is indicated in a recurrence or relapse or if the bleeding is uncontrollable. Splenectomy should be done if possible during a remission since it may be dangerous during the acute phase. In 75 per cent of patients a cure may be expected.[10]

Secondary thrombocytopenia may be divided into three categories. First, splenomegaly due to lymphomas, Banti's syndrome, acute or chronic infections, infectious mononucleosis, and sarcoidosis. In the second place decreased megakaryocytes in the bone marrow may occur as a result of chemical damage, and physical agents such as x-ray. It may also occur in aplastic anemia of various causes or in leukemia. Treatment of secondary thrombocytopenia involves treating the underlying disease. A third possibility is a syndrome which is called thrombotic thrombocytopenic purpura in which platelet thrombi occur in many areas of the body giving neurologic signs, signs of purpura plus a hemolytic anemia. This condition is a rare one but is seen often enough that one should keep it in mind in the differential diagnosis. This is similar to the Schwartzmann phenomenon seen in animals in anaphylactic shock.

Thrombasthenia, also called pseudohemophilia, falls into an ill-defined group between hemophilia and thrombocytopenic purpura. Some of these conditions are due to abnormal platelets even though the platelet counts are within normal limits; yet the bleeding time may be prolonged, there may be delayed prothrombin consumption or prolonged clot retraction. The addition of normal platelets may correct the abnormal laboratory tests. A qualitative defect in the platelets is probably present in these cases. Some cases which previously have been placed into this classification now may be described as plasma thromboplastic component (P.T.C.) deficiencies.

Plasma factor defects include the defect known as hemophilia. Hemophilia is a sex-linked recessive characteristic. In a recent publication ten men gave their ideas in a classic symposium on "What is Hemophilia".[9] Each man had a different idea as to what hemophilia was and there was not too much agreement as to the boundaries of the definition of hemophilia. Final proof rests on the fact that the unknown plasma fails to correct the plasma defect in a known hemophiliac. Classical hemophilia is described as an absence of antihemophilic globulin. The latter may also occur as a result of pregnancy, repeated transfusions or other generalized diseases. Deficiency of prothrombin conversion factors may also be a factor in hemophilia-like conditions.

Treatment of the hemophiliac involves prevention as well as therapy of hemorrhage. Some advise regular and frequent plasma infusions to prevent bleeding des-

pite the obvious and severe hazard of serum hepatitis. Infusions of fraction I of the plasma are said to produce antibodies and resistance to therapy more rapidly than citrated whole or fresh frozen plasma. ACTH may alter this resistance: Fraction I is not as potent as it was once said to be. This is probably because of changes induced in the processing.

During hemorrhage or surgery plasma or fresh blood should be used daily or more often if needed to maintain normal clotting until wounds are healed. Locally, the liberal use of bovine topical thrombin and pressure to bleeding lesions is important provided debris and clotted blood are first removed. Refrigerated thrombin should be kept in the patient's own home.

PTC component deficiency is also known as Christmas disease because it was first described in a patient by that name. This condition can vary from mild to severe. It is sex-linked, recessive, and appears mostly in men. Clinically it appears like hemophilia, but chemically it is different. It varies from normal coagulation and normal prothrombin consumption time to a coagulation time longer than eight hours, but antihemophilic globulin (or fraction I) does not cure these cases. It is corrected by blood, plasma, or serum and local thrombin, as well as plasma thromboplastic component administration. This PTC is in serum and plasma but antihemophilic globulin is only in plasma.

PTA (antecedent) deficiency is corrected by blood or plasma or serum. It causes slight prolongation of the coagulation time and the prothrombin consumption test.

COAGULATION - PHASE 2

We shall now discuss in more detail the second phase of the blood coagulation. (Figure 3) Prothrombin is changed to thrombin in the presence of thromboplastin, calcium ions and certain prothrombin conversion factors. Inhibitors of the reaction and of the various factors concerned in the equation are indicated by the dotted lines below the equation. Vitamin K is a necessary precursor to the formation of prothrombin which is always present in the circulating blood. Prothrombin can probably form minute amounts of thrombin initially as a slow part of this reaction; then the thrombin acts to facilitate the production of accelerin or serum AC globulin from its inactive precursor, the labile factor or plasma AC globulin or proaccelerin as we see it here. This reaction is the main accelerator of the prothrombin reaction and proaccelerin is found only in the plasma. The stable factor or convertin or SPCA is formed from

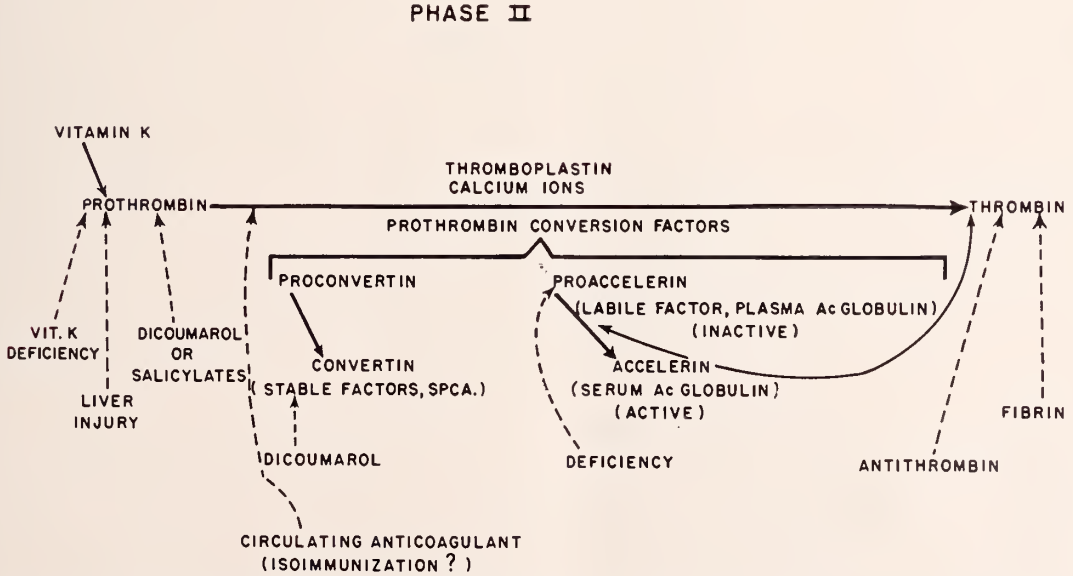


Figure 3. Phase II. The conversion of prothrombin to thrombin with details of other factors concerned in this phase. Inhibitors are indicated by dotted arrows.

proconvertin and it also accelerates the reaction but it is not used up in the reaction. This is the factor that is decreased markedly by dicumarol but is present in both plasma and serum. It is increased in amount in pregnancy which may help to explain the high incidence of thrombo-embolism. The conversion factors again, let me say, affect the speed of the reaction markedly but have little effect on the actual formation of thrombin.

CLINICAL SYNDROMES - PHASE 2

Obviously if there is a deficiency in vitamin K there will be a deficiency in prothrombin. (Table 2) This can occur from a deficient diet which is rare in mammals; it can occur when there is no bile entering the intestine to facilitate the absorption of vitamin K, as in obstructive jaundice or biliary fistula. It can occur in the newborn and is known as hemolytic disease of the newborn. There is a decrease in the biosynthesis of vitamin K_1 in the sterile intestinal tract as well as a low serum prothrombin conversion accelerator (or the stable factor). In liver disease the prothrombin cannot be formed from the vitamin K. Transfusion of blood, plasma or vitamin K_1 as well as improvement in liver function will correct this deficiency.

Anticoagulants such as salicylates and dicumarol form another factor in prothrombin deficiency. Dicumarol acts in some way on the liver to reduce the prothrombin content, as well as by decreasing the proconvertin content. The treatment of dicumarol or salicylate-induced hypoprothrombinemia is the administration of blood, plasma or vitamin K_1 in doses of 50 to 150 mgm. intravenously. Heparin is also an anticoagulant, the exact site or mode of action of which has not yet been determined. It probably acts as an antithrombin as well as to adversely interfere with the thrombin-fibrinogen interaction. Hyperheparinemia is treated with intravenous protamine sulfate, 100 or 200 mgm. or toluidine blue 300 to 400 mgm. daily. These combine as basic compounds with heparin, a strongly acid substance, to form insoluble and inactive salts.

There are also certain congenital deficiencies of prothrombin due to factor or factors unknown.

Calcium deficiency usually is not a factor in the coagulation defects since calcium deficiency which is severe enough to cause changes in the coagulation of blood usually is incompatible with life since the patient has long since died of hypocalcemic tetany.[8]

Prothrombin conversion factor deficiencies have been known as parahemophilia in previous studies. This is now felt to be a deficiency in AC globulin. The deficiency of labile factor or plasma AC globulin is corrected by fresh blood or fresh plasma transfusions. The addition of thromboplastin does not return coagulation to normal as it does in hemophilia. The labile factor, as would be presumed by its name, disappears in stored blood and often a shift from bank blood to fresh blood is lifesaving when massive transfusions have to be used which almost replace the total blood volume, since then an acquired AC globulin deficiency would be produced in the course of treatment. Deficiencies in the stable factor also known as proconvertin, convertin or SPCA can be treated by plasma, blood, serum or even vitamin K_1.

COAGULATION - PHASE 3

We will now discuss the third phase of blood coagulation, (Figure 4) the formation of the fibrin clot from fibrinogen in the presence of thrombin. Fibrinogen is always present in the circulating blood and if thrombin is formed it will cause fibrin to be polymerized from fibrinogen. Heparin is an antithrombin which tends to slow the interaction of the thrombin on fibrinogen and so will slow the clot formation. This is one of the factors in the anticoagulant activity of heparin, the other being its prevention of the action of thromboplastin to influence the prothrombin conversion to thrombin.

CLINICAL SYNDROMES - PHASE 3

The coagulation defects (Table 2) in phase three include decreased or absent amounts of fibrinogen in the plasma. These are rare conditions but do occur often enough to be considered. Afibrinogenemia renders the blood completely incoagulable

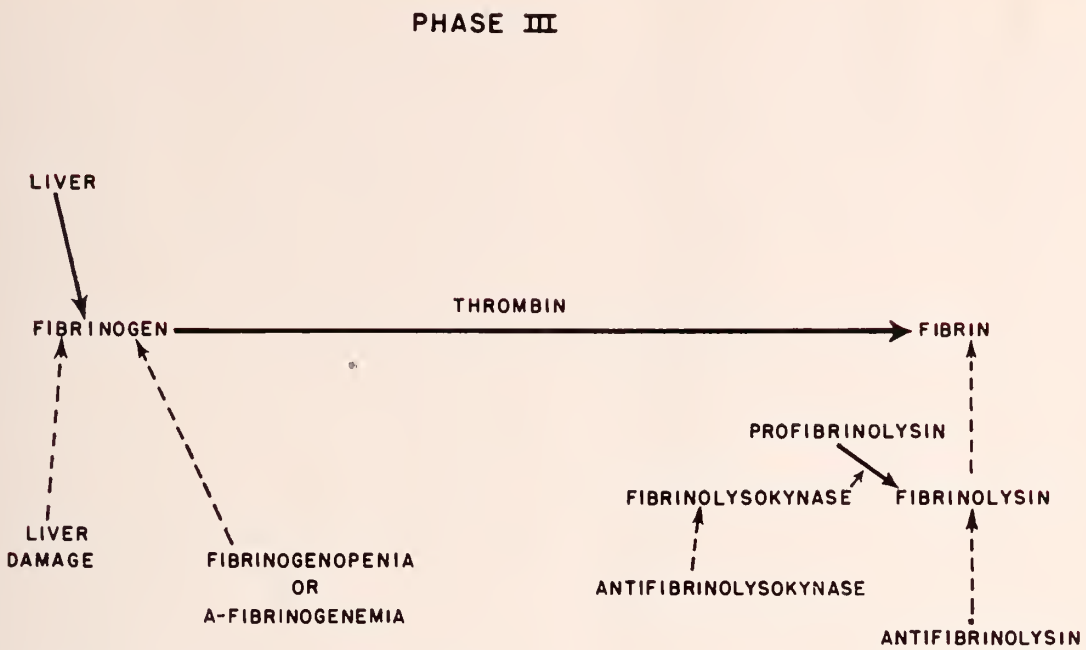


Figure 4. Phase III. The formation of the fibrin clot from fibrinogen in the presence of thrombin. A diagrammatic scheme of the fibrinolysin activity to dissolve clots is also presented.

even with added thrombin. Fibrinogenopenia can occur as a congenital defect.

Acquired fibrinogenopenia may occur as a complication of liver disease. More recently other conditions have been described in which hypofibrinogenemia may occur. As an occurrence with certain complications of pregnancy it should be detected. Premature separation of the placenta, amniotic fluid embolism, severe pre-eclampsia or eclampsia, or presence of a dead intrauterine fetus could also occur at or near parturition as a cause of excess bleeding from fibrinogenopenia.[6]

Shock, or neoplastic disease of the prostate, pancreas or stomach may also be a factor. Pulmonary surgery with manipulation of the lungs has been described as a cause of hypofibrinogenemia. It is often associated with increased fibrinolysin activity.[3, 4] The treatment is repeated intravenous infusions of blood, plasma or 4 to 6 grams of fibrinogen (fraction I).

Certain fibrinolysins may be present to lyse the fibrin clot. This is one of the newest phases of coagulation which has not been completely and thoroughly studied.[2-4] There is a profibrinolysin (plasminogen) in serum and in Cohn's fraction III of the plasma. This is evidently an inactive precursor which is converted by an enzyme fibrinolysokynase into fibrinolysin (plasmin). This enzyme is in various tissues especially the lung and the uterus and in serum. There is also an inhibitor to this enzyme called antifibrinolysin. This balance system usually is carefully regulated and it is thought that this balance is kept in check by the pituitary-adrenal axis. Under conditions of stress such as shock or electroconvulsive therapy or other conditions previously mentioned under fibrinogen defects the inhibitors to fibrinolysin and the enzyme involved may disappear or decrease in amount which allows the fibrinolysin to become active and dissolve the fibrin clot.

SCREENING TESTS

The differential diagnosis from the laboratory standpoint in the diagnosis of bleeding will now be presented. (Table 3) The history is most important in determining whether bleeding is on a local basis or whether it is on a systemic basis. It is rare to have a generalized hemorrhagic disease

TABLE 3
DIAGNOSTIC PLAN OF ATTACK

1.	History
2.	Capillary fragility test
3.	Complete blood count and smear
4.	Ivy bleeding time
5.	Lee-White coagulation time
6.	Clot retraction or lysis
7.	Prothrombin time (one stage)
8.	Prothrombin consumption test

without previous history. The best screening tests which may and should be done will be the capillary fragility test, routine blood examination of which examination of the peripheral blood smear is most important, bleeding time (Ivy), coagulation time (Lee-White), clot retraction or lysis, one stage prothrombin time and the prothrombin consumption test.[2] More complicated tests are used to detect the defects which become apparent from the above tests.

LABORATORY PROFILE

We shall begin with certain vascular investigations and proceed to the investigation of the various defects in actual blood coagulation. (Table 4) These capillary fragility tests with which you all are familiar are positive in thrombocytopenic purpuras, in scurvy and in thrombasthenia. It also may be positive in hereditary telangiectasis (Rendu-Weber-Osler disease).

The platelet count is decreased naturally in thrombocytopenia from any cause.

Bleeding time is prolonged in thrombocytopenia, in the thrombasthenia, in very severe prothrombin deficiencies, in AC globulin or the labile factor deficiencies and in severe hemophilia. It is preferable to do the Ivy bleeding time which seems to properly control the various vascular factors which may not be properly evaluated in the bleeding time from the ear or finger as is usually done. In the Ivy bleeding time a tourniquet is placed around the arm and is inflated to just above the venous pressure and the stylet is then inserted to a depth of 1 mm. in the smooth surface of the forearm.

The coagulation time is characteristically prolonged in hemophilia although there are some cases of hemophilia that have a variable coagulation time and at certain times in this disease the coagulation may be entirely normal. The prolongation is not corrected by normal serum. PTC or component deficiency also will produce a long coagulation time which is corrected by normal serum. PTA deficiency recently described will produce slight change of the clotting time. Fibrinogen deficiencies, severe prothrombin deficiencies and circulating anticoagulants will also produce prolonged coagulation time. Convertin deficiencies or deficiency in the stable factor also may produce changes in the coagulation time.

Quick advocates the use of the recalcified coagulation time.[5] It is abnormal in hemophilia and in marked prothrombin deficiency. This recalcified coagulation time measures the coagulation of plasma centrifuged at high speed which removes the platelets. This plasma clots a great deal slower in hemophilia than that centrifuged at low speed because of increased resistance of platelets to disintegrate. Calcium is added to both. He feels that this is a definite test to be used in the diagnosis of hemophilia and shows that in some way platelets are related to hemophilia and thromboplastinogen. If plasma is platelet free, neither the addition of normal or hemophilic platelets will change the clotting time, but either type of platelet plus plasma are necessary.

The thromboplastin generation test is one of the most valuable of all of the recent tests for the diagnosis and the differential diagnosis of bleeding. This test allows each component of the first phase of blood coagulation (the thromboplastin producing system) to be measured separately and in doing this test adequate amounts of all except one factor are added to the unknown blood to be tested. Quick [5] describes another similar test which he calls the thromboplastin activity test. This is also thought to be valuable. These tests very clearly differentiate a plasma thromboplastic component deficiency from hemophilia.

The one stage prothrombin time done by the Quick method is very useful as a routine laboratory procedure because it

TABLE 1
LABORATORY PROFILE

Test	Disease
A. Capillary Fragility Test Positive	A. Thrombocytopenic purpuras Scurvy Hereditary telangiectasia Thrombasthenia
B. Platelets decreased	B. Thrombocytopenia
C. Bleeding time prolonged	C. Thrombocytopenia Thrombasthenia Severe hemophilia Severe prothrombin deficiencies Proaccelerin to accelerin defect (labile) (Parahemophilia)
D. Abnormal clot formation, retraction or lysis	D. Thrombocytopenia Thrombasthenia Fibrinogen deficiencies Fibrinolysin activity
E. Coagulation time prolonged	E. Hemophilia Component deficiency Antecedent deficiency Severe prothrombin deficiency Proconvertin to convertin defect (stable) Fibrinogen deficiency Circulating anticoagulants
F. Recalcified coagulation time abnormal	F. Hemophilia Severe prothrombin deficiency
G. Thromboplastin generation test	G. Differentiates phase I abnormalities: Platelet thromboplastic factor Plasma thromboplastic factor Plasma thromboplastic component Plasma thromboplastic entecedent
H. Prothrombin time prolonged One stage	H. Hypoprothrombinemia Proaccelerin to accelerin defect (labile) Proconvertin to convertin defect (stable) Fibrinogen defects Anticoagulants
I. Prothrombin time prolonged Two Stage	I. Hypoprothrombinemia
J. Prothrombin Consumption Poor	J. Thrombocytopenia Thrombasthenia Hemophilia Component deficiency Antecedent deficiency Proaccelerin to accelerin defect (labile) Circulating anticoagulants
K. Tests for anticoagulants	K. Hyperheparinemia Hemophilia-like anticoagulants
L. Specific tests for various factors	L. Plasma thromboplastic factor Plasma thromboplastic component Proaccelerin to accelerin defect (labile) Proconvertin to convertin (stable factor)

is simple and can be done by a laboratory that is well-equipped in a standardized form without much, if any, variation. The one stage method measures the speed of the reaction of an unknown specimen of oxalated blood as compared to normal oxalated blood. It measures the plasma clotting time (prothrombin time) after the addition of optimal amounts of calcium and thromboplastin. The time is the mini-

mal interval that elapses before a macroscopic fibrin clot results from the conversion of prothrombin to thrombin. Variables that are present are the velocity of the thrombin-fibrinogen interaction and the deposition of the insoluble fibrin gel and the competitive effect of antithrombin inactivating the thrombin. Owren's modification of Quick's original test is said to be the most reliable. The one stage method will be prolonged in hypoprothrombinemia, AC globulin deficiency, in conversion factor deficiency, in fibrinogen defects and in circulating anticoagulants. It must be emphasized that a normal one stage prothrombin time excludes significant fibrinogen defects. Calcium chloride, thromboplastin, and prothrombin-free plasma are added together to the unknown plasma and the speed of coagulation is then measured.

The two-stage method will differentiate clearly hypoprothrombinemia from the other factors which produce one-stage prothrombin prolongation. This measures amounts of prothrombin by measuring the amount of thrombin formed in unknown plasma when calcium and thromboplastin are added to the serum. The oxalated blood is first defibrinated with thrombin to get rid of the fibrin clot after the blood is allowed to clot (thus not using up any prothrombin). The prothrombin is converted into thrombin in the presence of adequate amounts of calcium and thromboplastin. Supplementary amounts of serum prothrombin conversion accelerator must be added if a deficiency exists. This amount of thrombin formed is measured by determining the highest dilution of defibrinated plasma which will produce clotting of the standard fibrinogen solution in a specified period of time which has been standardized against known amounts of thrombin. Thus the amounts of thrombin formed in the reaction will be measured.

The prothrombin consumption test is also a valuable test and it is probably second in value to the thromboplastin generation test. This test will show a poor prothrombin consumption in hemophillia, thrombocytopenias, circulating anticoagulants, in cases of component and antecedent deficiencies, as well as thrombasthenia and AC globulin deficiencies. It measures the amount of available thromboplastin. Normal blood is placed in several plain test tubes. The prothrombin time is determined before (in the plasma on an oxalated sample) and after coagulation. Most prothrombin disappears (probably by conversion to thrombin) in sixty minutes as measured in the serum after coagulation occurs. If less than 15 to 20 per cent is left, then it is normal. If more than 15 per cent is left, it demonstrates that the prothrombin consumption is less than normal. This occurs in the various conditions which have been listed. Thromboplastic activity time is a modification of the prothrombin consumption test as described by Quick,[5] and it may differentiate thrombocytopenia from hemophilia. This test is abnormally short in hemophilia and is normal in idiopathic thrombocytopenic purpura.

Clot retraction is a function of the platelets and it is poor in thrombocytopenia and thrombasthenia. In hypofibrinogenemia the clot is small, flabby and often extrudes red cells from its mass. In afibrinogenemia the clot does not form at all in the presence of thrombin. If excess fibrinolysin activity is present the clot may form but lysis or fragmentation occurs.

Tests for circulating anticoagulants are also important and it may help to differentiate hyperheparinemia from some other types of circulating anticoagulants. Minute amounts of blood or plasma will prolong the coagulation time of normal blood. There are two types of circulating anticoagulants. First the hyperheparinemia or heparin-like substance which is similar to a hypoprothrombinemia type of disease. It seems to interfere with the conversion of prothrombin to thrombin. Protamine titration tests permit a quantitative estimation of this material. The treatment for this is protamine or toluidine blue, both basic substances.

The hemophilia type of disease prevents the conversion of the plasma thrombo-

plastic factor (antihemophilic globulin) into thromboplastin. Anticoagulants of this type may be found in hemophiliacs after many transfusions. This anticoagulant is associated with the pseudoglobulin fraction of the plasma. Other patients with signs of iso-immunization may have this type of circulating anticoagulant and many recover spontaneously.

Antihemophiliac factor can now be measured by its corrective effect on the clotting defect of hemophiliac blood. Measurement of plasma thromboplastic component can be similarly assayed. However, both require the freshly shed blood from patients with their respective disease.

It is possible also to measure AC globulin or the labile factor in a special way. Since the labile factor disappears from aging plasma, it is assayed by its ability to correct the retarded prothrombin conversion (elevated prothrombin time) of stored oxalated human plasma. Values are expressed in terms of normal pooled plasma. The two stage method may be used.

The amounts of stable factor or convertin with special tests may be measured by its effect in lowering (returning to normal) the elevated prothrombin time of a plasma known to be deficient in this serum prothrombin conversion accelerator factor as found in patients with this abnormality or in bovine plasma specially treated to remove the stable factor.

Thus it is possible with the use of various tests, most of which are available in the ordinary commercial laboratory, to differentiate the various causes of abnormal bleeding.

SUMMARY AND CONCLUSIONS

Because this problem has become so complex, as we learn more and more about coagulation and bleeding it seems that we actually know less and less. Yet this is not true for in recent years by discovering new factors involved in blood coagulation we have discarded hitherto vague and uncertain classifications and replaced them with accurate diagnoses. How many have seen and diagnosed fibrinogenopenia as a postpartum or postoperative complication? Yet with newer accurate techniques we may specifically treat this condition with fibrinogen rather than relying on huge amounts of blood with their attendant dangers to correct the situation.

While this discussion may leave you somewhat at sea about many conditions, terms and laboratory tests, it must impress you with the fact that a few moments of carefully planned probing questions about previous bleeding and bruising history together with a profile of screening laboratory tests will save much grief, morbidity, and mortality.

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THE PROBLEM OF PANCREATITIS; SURGICAL ASPECTS *

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For many years pancreatitis was thought to be a relatively rare disease and the problem that it presented to surgeons was usually faced only at exploratory laparotomy. Recently, however, pancreatitis is being diagnosed frequently preoperatively and the incidence is considerable. Needless to say, the harder one looks for it, the more often it is found preoperatively.

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In the evolution of thinking concerning this malady, many pathological terms have been applied and this has served mostly to confuse the clinician. Actually, there are many gradations as to acuteness and severity of the same disease process. Ordinarily now when we think of pancreatitis clinically, we are not speaking of the acute fulminating hemorrhagic pancreatitis which is seen at autopsy or at laparotomy when a mistaken diagnosis has been made. Rather we are thinking of a less severe, reversible inflammatory reaction in the pancreas.

PATHOGENESIS

The pathogenesis of the disease, in its early stages is seen only to show interstitial edema and inflammatory reaction of minor degree. This reaction may progress in an acute severe attack to rupture of the acini with thrombosis of the interstitial vessels and digestion of surrounding tissue by the activated enzyme of the gland with resulting hemorrhage and fat necrosis. Still later calcium is deposited in these areas of fat necrosis to produce soap. With repeated mild, acute attacks which never progress to the severity mentioned above, the edema subsides and interstitial fibrosis occurs. This may also be accompanied by formation of cyst-abscesses and pancreatic stones and result in eventual destruction of the gland because of scar. This end result is commonly seen in those patients who are diagnosed as having recurring acute pancreatitis.

From a surgical standpoint we are interested in classifying the disease in two ways so that some attempt at definitive treatment may be done. The so-called primary pancreatitis, therefore, is merely any gradient of inflammatory disease of the pancreas which is idiopathic in nature under our present concepts of the disease. On the other hand, secondary pancreatitis is usually thought of as an inflammatory reaction of the pancreas related to cholecystitis, common duct stones, duodenal diverticulae, metaplasia of the pancreatic ducts or spasm of the sphincter of Oddi. The methods of surgical therapy must, therefore, depend on the type of pancreatitis with which one is dealing.

ETIOLOGY

The etiology of pancreatitis is varied since the disease may be associated with other organic troubles. It is felt, however, that Opie's [1] theory of blockage of the ampulla by one means or another, the presence of a common channel between the bile ducts and pancreatic ducts, with reflux of bile into the pancreas as the inciting cause of the disease has long been over-emphasized. On the basis of autopsy studies, the presence of pancreatitis without associated biliary or ampullary disease, and the fact that injection studies of the pancreas with bile which resulted in pancreatitis are not valid since the pressures used were beyond physiological limit, one must concede that the common channel theory is not universally the underlying cause of the disease. In addition to this, it is now well understood that bile is not necessary to activate trypsin, thereby resulting in the picture of acute pancreatitis. It is known that trypsin can be activated by tissue fluids and it, of course, comes in contact with these fluids when acini rupture. Therefore, the theory propounded by Lium and Maddock,[2] that pancreatitis ensues when blockage of the pancreatic ducts either by mechanical means or as a result of spasm of the ampullary sphincter and/or pancreatic ducts themselves when the gland is actively secreting as following a heavy meal or ingestion of alcohol is a means of explaining most cases of pancreatitis. It is needless to say that there are a few other causes of pancreatitis which are less common as that seen following trauma to the pancreas, and a certain small incidence which is associated with infections such as the pancreatitis one sees occasionally with mumps.

On the basis then of the above philosophy, there are two classifications as to etiology of the disease.

SURGICAL TREATMENT

Our present concepts of definitive sur-

gical treatment are outlined as follows. Virtually all efforts have been directed toward correction by one means or another of the common channel. As indicated above, this situation does not exist in all cases. However, most efforts have been directed toward its correction whether present or not. Direct attacks along these lines include reimplantation of the pancreatic duct into the duodenum at a site away from the ampulla. As I see it, this is a very difficult method technically as the pancreatic duct is a small structure so that its isolation, division, and re-anastomosis into the duodenum require a most meticulous dissection which is accompanied with a considerable amount of trauma to the pancreas. Another direct method is the diversion of the common bile duct which too is an operation of considerable magnitude. The common duct must be divided and anastomosed either into the duodenum away from the ampulla, or better still into a defunctionalized loop of small bowel—the so-called Roux-Y loop—in an effort to prevent reflux of intestinal contents up the biliary tree. Indirect methods used in an effort to correct the common channel are operations of considerable less difficulty. Doubilet and Mulholland [3] have for several years championed various methods of division of the sphincter of Oddi either by use of a blind method through the common duct or a direct attack on the sphincter through the opened duodenum. As indicated above, this method is based on the assumption that the common channel exists and the spasm of the sphincter results in pancreatitis. These investigators have shown conclusively that spasm of the sphincter does occur after the injection of morphine or the presence of hydrochloric acid on the ampulla itself. They have had good results following this method of treatment. However, one cannot overcome the theoretic possibility of reflux of intestinal contents into the pancreatic and biliary tree once the sphincter is destroyed, resulting thereby in ascending cholangitis. It is certainly a point against this procedure on theoretic grounds as sphincter destruction in the dog always results in cholangitis if antibiotics are not given. Other investigators have employed the subtotal gastric resection as an indirect method of treatment of pancreatitis on the thesis that diversion of this kind prevents spasm of the ampullary sphincter, thereby stopping the resulting pancreatitis.

It goes without saying that the pancreatitis secondary to other diseases is treated by direct correction of the other primary disease. A distinct percentage of pancreatitis accompanies cholecystitis and cholelithiasis and hence cholecystectomy under these circumstances may be curative. Those patients with common duct stones, of course, are benefited by removal of these stones and drainage of the common bile duct and there are certain reported cases where drainage of the common duct itself resulted in improvement of pancreatitis even though no organic disease was present in the common bile duct. Pancreatitis accompanying peptic ulceration of the duodenum is fairly common and should be improved by proper treatment of the peptic ulcer either by medical management or properly applied surgical procedures. Obstruction of the ampulla or pancreatic ducts secondary to various tumors will result in pancreatitis, and if tumor is the inciting cause, then local excision or the Whipple operation will result in improvement of the pancreatitis.

As pancreatitis, either acute fulminating or acute recurrent, is accompanied by a large amount of abdominal and back pain, symptomatic treatment consists of splanchnic block and in those long standing cases, a splanchnicectomy. It must be pointed out, however, that this treatment merely stops the pain resulting from the disease. As we ordinarily consider acute recurrent pancreatitis a progressive disease, this treatment is considered purely symptomatic. Reports are in the literature of patients treated by splanchnicectomy with abolition of pain; however the disease

progresses unabated as shown by continued elevated serum amylases.

As discussed above concerning the etiology of pancreatitis, it was pointed out that a certain percentage of people suffering with acute recurrent pancreatitis have no accompanying organic disease that can explain the resulting inflammatory reaction of the pancreas. In general, it must be pointed out that these patients resemble the ulcer patient as concerns general habitus and emotional background. Careful history will reveal an unstable personality as manifested by inability to hold a job, difficulty in marital situations and actual psychosis. These people frequently are alcoholics and there is considerable doubt as to whether the alcoholism causes the pancreatitis or is merely a manifestation of their psychic troubles. Much research has been done along these lines as concerns the effect of the higher centers on the pancreas through the vagus nerves. In general, one may say that overstimulation through the vagus by higher centers results in an increased secretion of high enzyme content with an accompanying spasm of the ampulla and pancreatic ducts themselves. This then could be an ideal situation for the production of pancreatitis of either mild or severe degree if one believes the theory of Lium and Maddock concerning etiology. With this thought in mind a number of animal experiments were done which merely added to our interest and belief in this theory.[4] As a consequence a series of 14 cases have been done in which recurrent acute pancreatitis was treated by subdiaphragmatic vagotomy.[5] These patients have been followed from two to four years and in no instance has a bona fide attack of pancreatitis been observed postvagotomy. All these patients fitted into the situation as described above in that there was no obvious organic reason for their pancreatitis and careful psychological studies indicated an emotional imbalance Postoperatively they have been well and have returned to work. Several who were narcotic addicts are now cured of their addiction and in general we have been pleased with results. This method of treatment, however, we have found necessitates drainage of the stomach either by a dependent gastrojejunostomy accompanying vagotomy or a pyloroplasty since the vagotomy results in gastric retention in a high percentage of cases. Of this group of patients, one death occurred and this was due to an insulin reaction. He was our most severe case and had evidence of clinical pancreatic insufficiency. At autopsy no demonstrable pancreatic tissue could be found. It must be pointed out that the pancreas can function perfectly well without vagus innervation at a local reflex level and that this operation per se does not alter pancreatic function but merely protects it from the overstimulation from higher sources.

Pancreatitis itself results in certain complications and the surgical treatment of these complications consist of drainage of cyst-abscesses either externally or internally. However the internal method is the procedure of choice. This is usually accomplished by anastomosing the wall of the cyst to some adjacent hollow viscus but ideally is performed by diverting the cysts into a Roux-Y loop of jejunum. The external drainage, or the so-called marsupialization, usually results in a drainage lasting for years and is hence less desirable. Certain cysts complicating the pancreatitis can be excised completely and if so this is a satisfactory method of treatment. Late in the disease, stones are found in the pancreatic ducts and in some instances these stones can be removed; however; this procedure is accompanied by the danger of a pancreatic fistula and is not a procedure leading to a complete recovery. A few cases of far advanced pancreatitis with a chief complaint of pain have been treated by pancreatectomy. This procedure is exceedingly difficult from a technical standpoint as the gland is usually badly scarred and densely adherent to the adjacent large vessels. Several of these patients, however, have recovered from the surgery

and have lived a pain-free life with surprisingly small disability as a result of pancreatic insufficiency. In most hands, however, this operation is so difficult that it has little practical importance.

At the present time the philosophy concerning pancreatis is that the acute fulminating attack is best treated conservatively by means of gastric suction, antibiotics, parenteral fluids, and banthine. Any complications that arise from this acute attack must be treated as indicated above. Those patients, however, who have the so-called recurring acute pancreatitis in whom no associated organic disease can be found are best treated by the use of the psychogenic block accomplished by subdiaphragmatic vagotomy and gastrojejunostomy. It is felt that this will stop the progress of this disease which leads eventually to pancreatic insufficiency. More time must evolve before this statement can be proved.

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PRINCIPLES IN THE REPAIR OF HERNIAS*

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NEW ORLEANS

Hernias will always be with us, it seems, because they are congenital, because they are a complication of surgery, and because some individuals develop hernias due to unknown pathogenesis.

As a consequence hernia repair is a popular subject for medical writing. Its popularity seldom wanes. The material being written on hernia repair is as voluminous in the present as it was in the past. The number of techniques which have been described is beyond calculation. Each surgeon believes he has found a technique that is satisfactory in his hand and he wishes to set it down as *the* method of repairing a given type of hernia.

ELASTICITY AND ADEQUACY OF TISSUES

After the skin has been opened in the repair of a hernia, the surgeon's first and foremost thoughts should be: Are the tissues elastic, is the freed tissue adequate in quantity? If so, then tissue approximation by any method will give good results. But this decision is often most difficult and the point of determination is uncertain. Frequently, one feels that the patient may heal satisfactorily without reinforcement, even when the tissues seem inadequate. However, when weak and insufficient tissues are placed in coaptation the result is increased fiber strain. Often a surgeon is influenced by the fact that this is the first repair. But he must remember that tissue of poor quality will not hold whether it is the first repair or a subsequent one. He must decide whether the strain and stress upon a given piece of tissue will exceed its elasticity. It is far safer to employ a substitute material in repairing a hernia than to take the risk of recurrence. Telling the patient that the next time the hernia recurs it will be necessary to employ a substitute material is a waste of time and dollars. The more recently recommended re-enforcing materials, fascia and tantalum mesh, show a relative sparcity of complications so that their use is encouraged.

CAPACITY FOR WOUND HEALING

Another point of importance in the repair of hernias is to know the relative value of tissues in regard to wound healing and the relative degree to which tissues are able to repair themselves. At the risk of sounding elementary we should remind ourselves that the surgeon does not repair tissues; he approximates tissues, and the body, by the process of wound healing, does the actual repair work. Suture material holds tissue together so that during the next ten to fifteen days the body is able to bring about the necessary repair. To

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† From D'Ingianni Medical Foundation.

encourage wound healing one must use small calibre suture material and needle and must incorporate small quantities of tissue in the suture. Because the incorporated tissue is not viable any type of suture material may be used providing it holds sufficiently long for the healing or cementing process to be carried out to completion.

When we say that tissue is able to repair itself, we mean it can regenerate or fuse itself sufficiently to carry on the function as it did prior to its injury. This is only possible if the nerve supply is not incarcerated in suture material or divided. Nerve material will not regenerate, and without this important structure the physiology of the organ is markedly altered and proper healing is inhibited.

FIBROUS TISSUE

Fibrous tissue must also be given special attention in hernia repair. This tissue is best divided parallel to its fibers rather than transecting them, so as to reduce the stress and strain on the divided fiber when the patient stands, coughs, or bends. By dividing this tissue paralleling its fibers the point of stress is reduced to a minimum area. The transversalis fascia is to be constantly kept in mind as tissue that should be approximated regardless of its thickness. Frequently in approximating the peritoneum one neglects pulling together the thin layer of fibrous tissue. When it is fairly well developed it should be brought together in a separate layer of suturing rather than with the peritoneum. It has been said that the recurrence of hernias is in a large proportion due to the failure of approximating the transversalis fascia.

Since the blood supply in the abdominal area not only traverses in a longitudinal manner but also in a transverse manner with multiple anastomotic areas, it is hardly conceivable to devitalize these tissues. Yet blood supply to tissues is vital, so it is wise during hernia repair to save as many vessels as possible.

RESTORATION OF SAC CONTENTS

Good judgement is necessary in deciding how much space to leave where some normal structure of the body must traverse, such as: inguinal, femoral, and hiatal openings. If the space is closed too tightly that will cause strangulation of transmitted tissue. If there is more space than necessary this may promote recurrence of the hernia. It is of prime importance to restore the contents of the sac into the abdominal cavity. Frequently, we encounter large sacs that contain a great deal of abdominal content and it seems to be very difficult to replace the contents within the abdominal wall. This happens when we have not completely dissected the hernial ring which is causing the constriction. It is essential that this ring be adequately divided so that all of the hernial contents be restored to the abdomen with minimal trauma. Also, it is wise to search the omentum carefully for any bleeding that may result after an injudicious dividing of the omentum.

Case Report: Mr. C. W. The patient had a postoperative hernia through a midline incision which had been repaired the same morning. During the procedure the surgeon had found it difficult to slip the omentum into the abdominal cavity. Therefore, he quickly divided a piece of omentum, simplifying the procedure. That evening the patient went into profound shock. There was evidence of loss of blood. Upon exploration that night the patient was found to be actively bleeding from the divided omentum.

This case emphasises two points to be remembered in restoring the sac contents to the abdominal cavity: (1) there must be sharp delineation between various organs and tissues; (2) adequately opening of the hernial ring and careful ligation of all bleeding points are most necessary. It is important to remember bleeding points which appear insignificant at the time when the content is passed through the ring may become active once they have been dropped into the abdominal cavity, due of course to the release of the compression of the vascular system.

PERITONEAL INSUFFLATION

There is an infrequent type of hernia in which the entire abdominal cavity has passed through the hernia ring. The contents have been beneath the skin for such a length of time that the abdominal cavity itself seems to have diminished in size to the extent that it can no longer retain all

of the abdominal organs. Peritoneal insufflations have been advocated for this condition and they have met with considerable success. However, the following is a report of a complication that arose during insufflations:

Mrs. J. C. This patient had a large postoperative ventral hernia through which a full term pregnancy had passed as well as the majority of the intestinal tract. After the delivery the majority of the intestinal tract was palpated through the hernial opening. It was decided that the abdominal cavity should be insufflated preoperatively so as to assure the surgeon of a cavity sufficiently large to hold the hernia content. Therefore, intraperitoneal injections of air were administered.

A few hours after the insufflation the patient developed severe cramps, nausea and vomiting; hyperperistalsis was heard. There was roentgenological evidence of intestinal obstruction. This patient was immediately explored and intestinal obstruction was found, with no apparent cause however. The opening of the abdomen, no doubt, released the pressure causing the obstruction.

Whenever insufflations of the abdomen are done it is wise to observe these patients carefully for such a complication as has been described.

REINFORCING MATERIALS

The repair of a hernia is usually not a medical emergency. During the past twenty years in private practice I have repaired in excess of 400 cases; of these only 17 cases required an emergency procedure for incarceration of the bowel. Usually, hernia repair can be delayed until the patient is in excellent condition.

A properly prepared patient is a prime requisite to good healing and a smooth anesthesia, which are most necessary in hernia repair. A patient's constant straining is a detriment to suturing of friable and retracted tissues. The placement of supportive materials requires time and properly relaxed tissues.

In my own personal experience there were complications following the use of reinforcing materials, but in no instance was it necessary to remove any of these materials. Tantalum mesh was found to be the most effective of all the materials tried, not only as a reinforcing material but also as a substitute for peritoneal wall where there was not sufficient peritoneum to cover the defect.

Case Report: Miss E. B. This patient had a malignancy that involved the anterior abdominal wall. A portion of the wall had to be removed thus making closure of the wound impossible. Mesh was sutured to the edge of the peritoneum and the transversalis fascia, and the skin was then pulled over the mesh. This gave the patient a fairly well supported abdominal wall.

Hernia repair certainly warrants discussion and study, but rather than expound new techniques or methods of repair, perhaps the only general directive should be to emphasize the evaluation of the tissues. Whatever I have learned about the repair of hernias during the past twenty years can be compiled into the following brief statements: (1) The success of the repair depends primarily on the quality and quantity of tissue used in the repair. (2) Apposition of similar tissue is mandatory. (3) To use some form of reinforcement is often wiser than to trust that reinforcement is not necessary.

SUMMARY

Hernia repair demands a knowledge of anatomy, for the success of the repair depends on the restoration of a jumbled mass of tissues to their normal relationship. The surgeon must exercise extreme patience in restoring the hernial content, for in haste he might perforate the gut or divide tissues. He must use keen judgement in evaluating each case, especially in determining whether there is sufficient tissue present to withstand the strain of daily living. He must be ingenious enough to invent a method of closure on a moment's notice. He must be familiar with the use of reinforcing materials and know when to employ them. He must not optimistically rely on the healing processes of the body when in so doing he may risk recurrence of the hernia.

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THE "THERAPEUTIC TRIAL" AS A DIAGNOSTIC CRITERION IN HYPERTHYROIDISM *

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It is generally accepted that the diagnosis of hyperthyroidism is a clinical one. Further, the diagnosis can be made with reasonable assurance on the basis of a thorough history and physical examination in some 75 to 90 per cent of cases.[1] The remaining 10 to 25 per cent of cases are atypical enough to require the addition of laboratory data to support the clinical suspicion. It is to be emphasized that the laboratory examinations only add to the composite clinical picture. In this group of "difficult" cases, as well as in the more obvious cases, it is the final clinical picture after prolonged observation that is diagnostic.

The BMR, I^{131} uptake, and protein-bound iodine determination are the tests in relatively common use today for the estimation of thyroid function. The latter two, even now, are often not readily available to the clinician. Each of these tests is subject to error—error in performance of the test and error in interpretation of results.[1,2] None of these procedures is infallible and none is diagnostic in itself. That they are of definite clinical usefulness is certain, but even when the results of all are at hand definite diagnosis will still be in doubt in a significant percentage of cases.

These cases defying diagnosis by the usual methods constitute a heterogeneous group and include the older patient with "masked" hyperthyroidism; the hyperthyroid individual sine goiter; the patient with hypermetabolism not thyroidal in origin, and others. It is in this group of patients that the therapeutic trial becomes of diagnostic importance. In addition, when the clinician is unable to obtain certain indicated laboratory data—viz, PBI and I^{131} uptake—the therapeutic trial may be resorted to.

In order for a therapeutic trial to yield valid diagnostic results in any illness, certain qualifications must be met:

1. The agent used for the trial must have a specific action or effect upon the particular disease under suspicion.
2. The agent used should have no discernible effect which could be confused with a therapeutic response in the absence of the disease under suspicion.
3. The specific action of the agent must be reflected in measurable objective criteria in order to assay results of the test.

Specific medical treatment is available in the case of hyperthyroidism. So far as is known, the medical agents used in the treatment of hyperthyroidism have no effect in euthyroid persons which could be confused with a therapeutic response. Objective yardsticks to measure the results of therapy are usually present. Therefore, the therapeutic trial can yield valid results and be of great diagnostic significance.

The factors to be considered then in carrying out a therapeutic trial for the diagnosis of hyperthyroidism are:

1. Choice of drug
2. Dosage and dosage schedule
3. Duration of the trial
4. Assessment of results

CHOICE OF DRUG

There are at present two types of drugs which are suitable for a therapeutic trial in hyperthyroidism. These are (1) iodide —usually used in the form of Lugol's solution and, (2) the antithyroid drugs—propylthiouracil and methimazole (tapazol) being the most commonly used.

Iodide is time-honored as an "ideal" agent for the therapeutic trial. Its advantage is rapidity of action, producing rapidly assessable results. The disadvantages of iodide, however, are many. These disadvantages can be related to the mode of action of iodide, which, it will be remembered, has three actions with regard to the hyperactive thyroid (Figure 1).

1. Iodide promotes the formation of thyroid hormone and its storage in the gland

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as colloid. This action will persist as long as the drug is administered.

2. Iodide inhibits thyroid stimulating hormone (TSH).

3. Iodide prevents the release of thyroid hormone from the gland.

The last two actions of iodide are responsible for the therapeutic effect in hyperthyroidism. These two effects of the drug do not persist as long as the drug is given (Figure 2). They produce a maximum effect within ten to fourteen days usually. Then, despite continued administration, there is "escape", or gradual tapering off of these two effects of iodide.

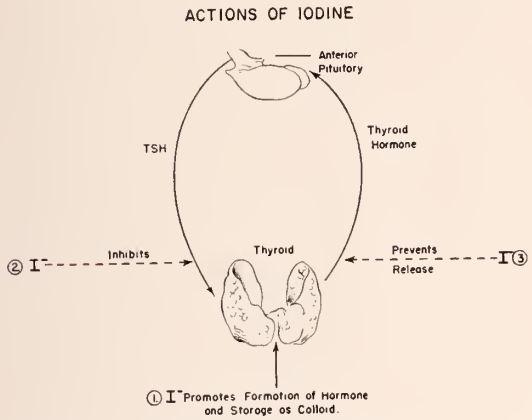


Figure 1.—Broken lines indicate actions 2 and 3 fail to persist even though administration of iodide is continued.

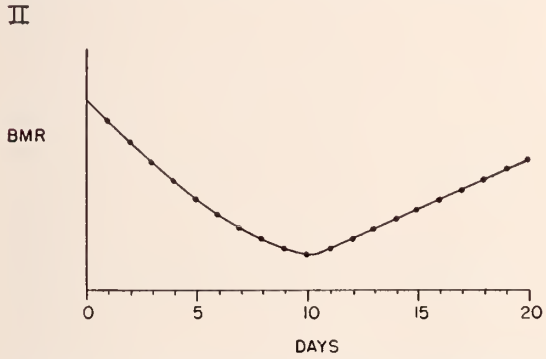


Figure 2.—Effect of continued iodide administration on one parameter of thyrotoxicosis. With continued administration there is gradual loss of effectiveness.

The disadvantages of I^- can now be enumerated: 1. The continued use of iodide is unsatisfactory for control of hyperthyroidism—the escape phenomenon referred to above.

2. Since the iodide treated gland is saturated with I^-, the results of I^{131} uptake studies, which may later be desired, will be invalid for a period of six weeks or more. For the same reason, the use of I^{131} for therapy becomes difficult or impossible for a like period of time. This is quite important as often the individual in whom the therapeutic trial is carried out is the ideal candidate for I^{131} therapy. We are then left in the position of having a diagnosis but being unable to carry out ideal therapy.

3. When one wishes to institute antithyroid drug therapy in a patient previously taking iodide, one must expect a delayed, slow response. The antithyroid drugs are effective in hyperthyroidism because they inhibit an enzyme system whose function is necessary for high rates of synthesis of thyroxine. However, the antithyroid drugs have no effect on preformed hormone which will be present in abundance in the gland previously treated with I^-. This preformed hormone will be released from the gland at its own rate perpetuating the hypermetabolic state, and the effects of the antithyroid drug will not become apparent until the store of preformed hormone is exhausted.

4. Another disadvantage of the use of iodide therapy for the therapeutic trial is related to the fact that I^- is our most rapidly acting therapeutic agent in thyrotoxicosis and therefore highly useful in the management of thyroid crisis. If a patient in crisis has recently been on prolonged iodide therapy, he will already have received maximal beneficial effects and will be in the "escape" stage. Our therapeutic "ace-in-the-hole" will already have been played and no longer available for use when most needed.

For these reasons, it is my opinion that the use of Lugol's solution or other forms of iodide for the therapeutic trial should be abandoned in favor of the antithyroid drugs. The only advantage of iodide is the more rapid response obtained.

The antithyroid drugs, on the other hand, are eminently suited for the therapeutic trial. Their action, insofar as is known, is specific. That is, with adequate dosage correctly prescribed, a clinical response will occur in any hyperthyroid individual. There is no evidence of any such thing as refractoriness to antithyroid drug therapy. On the basis of present evidence, a response to antithyroid drug therapy indicates a diagnosis of hyperthyroidism—failure to respond indicates a euthyriod state. The euthyroid individual will have no discernable effect from antithyroid drugs in the usual dosages given. There is little to choose from between propylthiouracil and tapazol although the author personally prefers the latter. The *indiscriminate* use of antithyroid drugs should be avoided in view of the occurrence of agranulocytosis in a few individuals (less than 0.5 per cent) receiving these agents. However, the use of these drugs in discriminately chosen cases is well justified clinically by their effectiveness and the relative rarity of serious side effects.

DOSAGE AND DOSAGE SCHEDULE

Adequate dosage is obviously necessary. Propylthiouracil is usually recommended in dosages of 300 to 600 mgm. daily. For purposes of a therapeutic trial the lower value is probably too low. Four hundred and fifty to 800 mgm. daily is recommended for this purpose. The range of tapazol dosage is 30 to 80 mgm. daily. Forty milligrams daily is recommended for the therapeutic trial. In the event of equivocal results either drug can be increased to the maximum values given. In general, patients with a small diffuse goiter respond to smaller doses and the large nodular goiter requires higher dosage levels.

Correct timing of dosage is most important. These compounds are rapidly excreted and are not cumulative. They must be given in divided doses at no longer than six to eight hour intervals. To avoid misunderstanding, it is preferable to prescribe each dose at a definite time of day, e.g. tapazol mg. 10, one tablet at 6 a.m., noon, 6 p.m. and midnight.

DURATION OF THE TRIAL

How long should the trial be carried out? The usual patient with a diffuse goiter or no goiter and no previous iodide treatment will show a definite response within ten to twelve days and will be approaching the euthyroid state by twenty-one days. Therefore, a trial period of four to six weeks would seem adequate. The nodular goiter may require larger doses and a longer period of time to respond—but certainly some objective response may be expected within thirty to sixty days and often is seen earlier with adequate dosage. A total trial of eight to twelve weeks should yield satisfactory results in even the most stubborn case of nodular toxic goiter. The patient previously treated with iodides may take as long as three to six months to respond to antithyroid drug therapy depending upon the amount of stored hormone present.

The necessity for full cooperation of the patient seems too obvious to even mention, but occasionally must be assessed as a factor in evaluating results of the trial.

ASSESSMENT OF RESULTS

The evaluation of results of the trial is not usually difficult. The important point is that the response must be an objective one—the criteria necessarily varying from patient to patient dependnig upon the presenting signs and symptoms. Criteria such as pulse rate, body weight, tremor, quadriceps weakness, eye signs, and signs of peripheral vasodilatation, such as the hot moist palms and skin are useful criteria for evaluation. The response of previously refractory heart failure or the conversion of a cardiac arrythmia to normal sinus rhythm may be a guidepost. The BMR may on occasion be extremely useful as a criterion of response in patients who present few or none of the readily evaluated signs of thyrotoxicosis. The objective evaluation of the response to the therapeutic trial is the key to the usefulness of the procedure.

SUMMARY

In suspected cases of thyrotoxicosis the therapeutic trial is indicated when a thorough history and physical examination,

available laboratory data, and a reasonable period of observation do not solve the diagnostic dilemma. The antithyroid drugs are the agents of choice for the trial. The details of administration of the drugs are important for the trial to yield valid results. The results of the trial must be judged on the basis of objective criteria.

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THE STATUS OF ANTIDIABETIC SULFONAMIDE COMPOUNDS

The antidiabetic detection drive of the National Diabetes Association will take place on November 11 through 17. Physicians cooperating in this drive, of whom it is hoped there are many, will have occasion to answer questions in formal addresses, and in informal remarks in regard to the present status of orally given antidiabetic sulfonamide compounds.

In the last three years in Germany, and more recently in this country, investigation of the use of these compounds has produced encouraging results. Unfortunately, it has resulted in widespread publicity in the lay press. Diabetics, and relatives who are concerned with the care of diabetics, are anxious to use the oral medications about which they have read glowing accounts. They feel that it will relieve them of the necessity of the use of insulin, and free them of many restrictions.

It is well, therefore, that the physician be adequately informed as to the status of these preparations. In this manner, physicians may build up a cautious attitude among patients who are diabetics, and get their cooperation in waiting for adequate scientific data and the accumulation of sufficient clinical experience before demanding their use. The individual diabetic has far too much at stake to exchange the trustworthy diabetic regime in general use at present for one whose complexities are yet to be determined.

The information at hand in regard to these sulfonamide compounds gives some promise of their being of considerable help to certain groups of diabetics.

The compound carbutamide (1-butyl-3-sulfanilylurea, designated substance BZ-55 by the German investigators, and known also in Germany as nadisan and invenol) has been shown to lower the blood sugar level. Another sulfonamide compound (1-butlyl-3*p*-tolylsulfonylurea), designated as tolbutamide, has also been shown to have this effect. Lowering of the blood sugar has been shown in normal animals and in human beings who are diabetic and nondiabetic. Carbutamide was first investigated for its antibacterial action in February 1954, by Franke and Fuchs.[1] Trying the preparation on themselves, they noted fatigue, perspiration, hunger, trembling, and a certain degree of euphoria. Blood sugar determinations showed a definite hypoglycemie effect. Extensive clinical trials followed these observations. It is quickly absorbed, and more slowly excreted. Within two or three hours after the ingestion of 2.5 grams, a definite lowering in the blood sugar level will occur. The

mode of its action has not yet been completely established. For this hypoglycemic action to take place, it seems necessary that there should be a sufficient number of the islets of Langerhans to produce a certain amount of insulin, or the presence of exogenously introduced insulin. The blood sugar level lowering effect can be obtained in the absence of the adrenals or pituitary, but in totally depancreatinized animals the effect on blood sugar is not significant.

Ferner and Runge[2] feel that the effect is on the alpha cells of the islands of Langerhans. Mirsky found carbutamide to be an inhibitor of insulinase, an enzyme which terminates the activity of insulin. By this hypothesis, carbutamide prevents the destruction of insulin by enzymic activity.

The toxicity of carbutamide is low. Occasional drug fever and drug eruption have been reported. Mental cloudiness has occurred in one patient. Occasional depression of the white blood cell count has been reported. Evidence also exists that potentiation of barbiturate action may occur. It has been remarked that the time of observation is too short to permit conclusions about the ultimate frequency of side effects from toxic reactions.

Clinical observations have indicated that the patients who respond favorably to the drug fall, in general, into the group of those who become diabetic in maturity, are obese, overweight, and have not required an excessive dose of insulin. Numerous European investigators have cautioned that its effects are not satisfactory in the juvenile diabetic, or those below 40, or in the thin, asthenic type, who have required large doses of insulin more than five years, and those whose sugar metabolism is unstable. It is not suitable for emergency treatment of a diabetic with acidosis, or those undergoing surgery, or for children.

The usual procedure has been to give the patient 2.5 grams the first day, 1.5 grams the second day, and 1 gram daily thereafter. Some authors have reported stopping the use of the drug after ten to fourteen days without the necessity of having to return to it over a matter of weeks and months. The majority, however, advise that the patient be kept on a maintenance dose of 0.5 to 1 gram a day. All observers express caution as to the care of the patient in emergency situations which deviate from his careful diabetic regime. The necessity for further proper adherence to the diabetic diet is as urgent as in our present established routine methods.

The grouping of individuals who respond and who do not respond to carbutamide has prompted certain authors [3] to classify diabetes. They feel that there are two types of diabetes, spoken of as insulin deficiency diabetes and counter-regulation diabetes. Carbutamide is frequently successful in controlling the latter and fails in the insulin deficiency type. Those diabetics of long standing with a tendency towards asthenic type who do not respond to carbutamide treatment, these authors believe, have in the course of years experienced a transformation of counter-regulation diabetes into an insulin deficiency diabetes. Lawrence [4] has previously divided diabetes into (1) lipoplethoric, (2) insulin deficient, and (3) lipo-atrophic (very rare).

The indications are, therefore, that this drug or one of similar type will become a useful aid to treatment of diabetes, but its proper usefulness, its hazards, and the limitations of its benefits have yet to be determined. In the forseeable future, even when its use is undertaken on an investigative basis, the transition from the diabetic state to its routine administration, or from insulin regime to its use, should be a hospital procedure.

REFERENCES

1. Ridolfo, Anthony S. and Kirtley, Wm. R.: Clinical experiences with carbutamide, an orally given hypoglycemic agent, J.A.M.A. 160:1285 (April 14) 1956.

2. Ferner, H. and Runge, W.: The Langerhans islands of diabetes after treatment with the oral antidiabetic BZ 55, Deutsche med. Wochensch. 81:331 (March 9) 1956.

3. Bertram, Ferdinand, Bendfeldt, Elinor, and Otto, Hellmut: Indications for and results of the peroral treatment of diabetes mellitus with a sulfonyl urea derivative; report on 335 cases, Deutsche med. Wochensch. 81:274 (Feb. 24) 1956.

4. Lawrence, R. D.: Three types of human diabetes, Ann. Int. Med. 43:1199 (December) 1955.

5. Editorial: Orally given antidiabetic sulfonamide compounds, J.A.M.A. 160:1320, (April 14) 1956.

DIABETIC DETECTION WEEK

The National Diabetes Association will have their annual Diabetes Detection Week between November 11th and 17th, 1956. The Louisiana Diabetes Association is requesting the cooperation of all physicians in this worthy endeavor to discover hidden diabetics.

Statistical surveys continue to indicate that there are as many diabetics unknown to themselves, and their physicians, as there are diabetics under treatment. If each physician's office is a diabetic detection center during the third week in November, many patients will benefit by having their condition understood.

The activities of the Diabetic Association are entirely those of physicians and they deserve our enthusiastic support.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

AMERICAN MEDICAL ASSOCIATION CLINICAL MEETING

Seattle, Washington

November 27-30th, 1956

Are you making plans now to attend the A.M.A. Clinical Session in Seattle, November 27-30?

Various committees are working hard in preparation for the meeting and you can be assured that an outstanding scientific program and excellent hotel accommodations await those who attend this year's meeting.

In cooperation with the Council on Scientific Assembly, the general committee headed by Chairman M. Shelby Jared of Seattle has been working diligently for months and reports that plans are near completion.

The center of activities will be Seattle's Civic Auditorium, where scientific sessions will be held and exhibits will be displayed. Conveniently located the auditorium is easily accessible from downtown hotels, and transportation will be available for commuting to and from the meetings. A cafeteria will be operated in the auditorium for midday meals.

Clinical Session headquarters will be the Olympic Hotel, where House of Delegates sessions and meetings of the Board of Trustees, councils and reference committees will be held.

The scientific program will be beamed at the general practitioner, and subjects have been carefully chosen to be of interest and practical value. The program will include panel discussions, individual papers, motion pictures and closed-circuit television clinics.

The panel discussions will cover such subjects as hypertension, hemolytic anemia, prenatal care, problems of aging, epilepsy, low back pain, liver disease and vascular disorders. Twenty topics will be considered by panels of men prominent on the national scene and in the Northwest.

There will be 45 papers dealing with such subjects as fluid balance, urological problems, office psychiatry, varicose veins, fractures, diabetes and heart disease. Well-known medical educators and practicing physicians from all parts of the country will participate.

The television clinics will include both wet (operative) and dry (non-operative) programs. Talent will be drawn largely from Seattle because of the necessity of rehearsals and frequent briefing. There will be clinics on block anesthesia, treatment of burns, bleeding problems, intestinal obstruction, caesarean section, hand surgery, vein stripping and other subjects.

The program for the medical motion pictures and the schedule of papers, panels and television shows will be published soon in the A.M.A. Journal.

Scientific and technical exhibits have been arranged through A.M.A. headquarters. They promise to be as interesting and varied as in the past.

Elaborate plans are being made for a banquet and entertainment for the House of Delegates, Board of Trustees, A.M.A. officials and their wives on Wednesday evening, November 28th, in the headquarters hotel.

Prepaid medical service plans of Washington, Oregon and Idaho are planning to conduct a hospitality suite in grand style for three days during the session. The prepaid plans of these states also will present an exhibit of their services to the public.

Plans are near completion for Auxiliary activities during the Clinical Session. Sight-seeing tours and other events are on the agenda.

Physicians are urged to make their reservations early. A reservation form is appearing now in the A.M.A. Journal.

For your information, following are the Railroad Schedules:

Missouri Pacific Railroad Company

		Schedule		Example
Lv	New Orleans	Mo. Pac No. 3	8:35 AM	Sunday
Ar	Houston		6:10 PM	"
Lv	Houston	Santa Fe 66	6:45 PM	"
Ar	San Francisco	Santa Fe 1	1:30 PM	Tuesday
Lv	San Francisco	Sou Pac 12	4:00 PM	"
Ar	Seattle		1:00 PM	Wednesday
Return:				
Lv	Seattle	Sou Pac 11	12:30 PM	Sunday
Ar	San Francisco		9:15 AM	Monday
Lv	San Francisco	Santa Fe 2	11:00 AM	"
Ar	Houston	Santa Fe 65	8:15 AM	Wednesday
Lv	Houston	Mo. Pac 4	9:05 AM	"
Ar	New Orleans		7:15 PM	"

Fares

	Fare	Tax	Total
Round-trip first-class	$146.65	$14.67	$161.32
Pullman—each way.			
Lower berth	27.15	2.72	29.87
Bedroom—2 persons	59.70	5.97	65.67
Compartment—2 persons	65.15	6.52	71.67

Southern Pacific Lines

		Schedule		Example
Lv	New Orleans	Sunset Limited No. 1	10:45 PM, CT	Monday
Ar	Los Angeles		4:15 PM, PST	Wednesday
Lv	Los Angeles	The Owl No. 57	6:05 PM, PST	"
Ar	Oakland Pier		7:15 AM, PST	Thursday
Lv	Oakland Pier	Shasta No. 10	7:55 AM, PST	"
Ar	Portland		11:30 PM	"
Lv	Portland	Shasta No. 10	11:45 PM	"
Ar	Seattle		6:15 AM	Friday

This is streamline train from Oakland to Portland with chair car seats, and parlor car seats, change to pullman in Portland.

or

Lv	Los Angeles	The Lark No. 75	8:00 PM, PST	Wednesday
Ar	San Francisco		7:30 AM, PST	Thursday
Lv	San Francisco	Cascade No. 12	4:00 PM	"
Ar	Seattle		1:00 PM	Friday

This is also streamline train with through pullman from Oakland to Seattle.

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SURGICAL ASSOCIATION OF LOUISIANA

The 9th Annual Meeting will be held on Sunday, November 4, 1956, at the St. Charles Hotel, New Orleans, La.

LOUISIANA ACADEMY WILL CELEBRATE TENTH ANNIVERSARY

The finest scientific program and entertainment has been made available to those attending the Tenth Annual Scientific Assembly of the Louisiana Academy of General Practice at the Jung Hotel in New Orleans, La. Oct. 9, 10, 11, 1956.

The scientific session will feature Dr. Malcolm Phelps, President-elect of the American Academy of General Practice; Dr. Philip Thorek, Clinical Associate Professor of Surgery, University of Illinois, College of Medicine; Dr. Robert Ross, Professor and Head of Department, Obstetrics and Gynecology, University of North Carolina School of Medicine, Dr. Wm. Paul, Professor of Medicine and Rehabilitation, Medical Director of Poliomyelitis and Rehabilitation Unit, Medical Director of Varsity Athletics, University of Iowa and Dr. Richard Kern, Professor of Medicine, Temple University, Philadelphia; Dr. Lawrence O'Neil, Surgeon in Chief, Independent Unit, Charity Hospital, New Orleans and Dr. T. A. Watters, Clinical Professor of Psychiatry at Louisiana State Medical School.

The program fulfills the requirements for the allowance of ten hours category I credit postgraduate education.

GASTROENTEROLOGICAL CONVENTION

The Annual Convention of the American College of Gastroenterology will be held at The Roosevelt in New York City on October 15, 16, 17, 1956.

The program this year will feature six panel discussions on the diseases of the gastrointestinal tract, one to be presented by each of the six medical schools in New York City. In addition, there will be individual papers and a special motion picture program.

There will be scientific, as well as commercial exhibits, and the sessions will be open to all physicians without charge.

Following the Convention, the Annual Course in Postgraduate Gastroenterology, under the personal direction of Dr. Owen H. Wangensteen of Minneapolis, Minn., and Dr. I. Snapper of Brooklyn, N. Y., will take place on October 18, 19, 20 1956, at The Roosevelt and the new Metropolitan Hospital Center. The faculty for the Course has been chosen from the medical schools in New York and adjacent areas.

The Postgraduate Course will be open only to those who have registered in advance.

Copies of the program and further information concerning the Postgraduate Course may be obtained by writing to: American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

ACADEMIC DEDICATION

The University of Mississippi School of Medicine

October 23 - 24, 1956

Jackson, Miss.

PROGRAM

Tuesday, October 23

9:00 a.m. — Welcome, D. S. Pankratz, M. D., Dean of the School of Medicine and Director of the University Medical Center.

9:15 a.m. — "The Problems of Intersexuality." Bayard Carter, M. D., Professor and chairman, Department of Obstetrics-Gynecology, Duke University.

10:00 a.m. — "Psychiatry and Undergraduate Medical Education,"
G. N. Raines, (Captain M.C., USN) Head of Neuropsychiatric Branch, Professional Division, Bureau of Medicine and Surgery, Department of the Navy; Professor and Director of the Department of Psychiatry, Georgetown University.

11:00 a.m. — "Certain Unsolved Problems in Amebiasis."
Henry E. Meleney, M. D., Research Professor of Medicine, Louisiana State University.

12:00 noon — Tour of the University Medical Center

2:30 p.m. — "Nutrition and Atherosclerosis"
Frederick J. Stare, M.D., Professor and Chairman, Department of Nutrition, Harvard School of Public Health.

3:20 p.m. — "The Place of Pathology in Medicine of the Future."
Douglas H. Sprunt, M. D., Director of the Institute of Pathology, University of Tennessee.

4:20 p.m. — "Some Interesting Pediatric Diagnostic Problems."
Amos U. Christie, M. D., Professor and Chairman, Department of Pediatrics, Vanderbilt University.

7:00 p.m. — Dinner, Heidelberg Hotel
Alton C. Bryant, Provost, The University of Mississippi, Presiding.
Joseph C. Hinsey, Ph.D., Director of New York Hospital-Cornell Medical Center, Speaker. Topic to be announced.

Wednesday, October 24

9:00 a.m. — "X-Ray Screen Intensification and Its Import in Clinical and Experimental Medicine."
Russell H. Morgan, M.D., Professor and Chairman of Roentgenology, Johns Hopkins University.

9:50 a.m. — "The Contribution of Pyramidal and Extrapyramidal System to the Use of Skeletal Muscle in the Primate."
Marion Hines, Ph.D., Professor of Experimental Anatomy, Emory University.

10:50 a.m. — "Topic to be announced."
I. S. Ravdin, M. D., John Rhea Barton Professor of Surgery, University of Pennsylvania.

12:00 noon — Tour of the University Medical Center.

2:20 p. m. — "Basic Physiology as a Clinical Science."
Carl J. Wiggers, M. D., Cleveland, (Ohio) Clinic, Emeritus Professor of Physiology.

3:20 p.m. — "An Experimental Study of Combined Viral and Bacterial Infections."
G. John Buddingh, M. D., Professor and Chairman of Microbiology, Louisiana State University.

4:15 p.m. — "The Challenge of Mood-Altering Drugs."
C. D. Leake, Ph.D., Associate Dean, School of Medicine, Ohio State University.

(Approved for Credit, 10 hours Category 1, American Academy of General Practice)

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WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

AUXILIARY VOLUNTEER IN MENTAL HOSPITALS

Mrs. W. A. K. Seale, President

The goal of any type of psychiatric activity is the eventual resocialization of the individual. In addition to services provided by professionals and hospital organizations it is proper and indeed necessary that society itself plays a part in rehabilitation procedures.

The patients in the mental hospitals are members of our families, our friends and our neighbors. Many of them have great ability and as wide a variety of interests and talents as any large group. Creative and constructive activities to fill the patients' free time, supplemented by visits and gifts which represent community respect and good will, are contributions that can be supplied only by volunteers since it is necessary for the employed staff to maintain a different relationship in order to attend to all their duties within a specified time.

Not all of you could work as volunteers in the hospitals even if you so desired. Since you would be working directly with the patients, it would be necessary that you be screened to determine your suitability for a particular type of work. Orientation of all staff employees and volunteers is of utmost importance and all volunteer activities are under the supervision of the director of volunteers and the employed staff.

Plan a program on mental health for your group or a tour of a hospital. The Central Louisiana State Hospital prints a folder entitled, "What You Can Do", in which the volunteer

services are listed in order of importance as follows: Visiting, Leadership, Give a Party, Rides and You—you can also help by getting your friends and neighbors interested. Listed in another section are the "Gifts That Are Needed", these are: Clothes, books, games, musical instruments, records, sheet music, radios, televisions, phonographs, scraps for rugs, fruits, cakes, candies (by the dozen or by the truck load) and cash gifts for parties and entertainment of patients.

It is difficult to conceive of any time in the near future when the work of volunteer groups will not be of value. There will always be hospitals and patients in those hospitals who need the extra measure of personalized attention which means so much to living human beings.

The talk by our President, Mrs. W. A. K. Seale, at the National AMA Conference in Chicago serves to remind us of the great need for volunteers in the field of Mental Health. As Auxiliary members we are needed to lead the way in this endeavor, but my appeal is directed to all doctors' wives to contribute to the success of this program. Each of us has something of great value to offer others. If in your own quiet way you knew that YOU were supplementing the inadequacy of others, wouldn't your mental picture be brighter? Offer your services NOW by contacting your local Auxiliary Mental Health chairman. Remember that whatever you give always returns threefold.

Mrs. Pierre A. Donaldson, Chairman
Mental Health, Woman's Auxiliary
to the La. State Medical Society.

Submitted by:
Mildred G. Carter, Chairman
Press and Publicity

—o—

BOOK REVIEWS

Normal Labor; by Leroy A. Calkins, M. D., Springfield, Illinois, Charles C Thomas, 1955, pp. 128, Price $4.00.

In this monograph the author discusses the physiology and management of labor and the puerperium, in the first fifty-three pages, and then devotes sixty-seven pages to the reprinting of seven papers previously published by him dealing with various phases of labor, and setting forth his views thereon. It is interesting to note that in the first section he deals chiefly with the physiologic and anatomic changes that occur in labor, and with the general management of labor and the puerperium. He gives no directions as to the actual delivery of the baby, apparently feeling that the reader is fully conversant with that subject. He does set forth the details of the conduct of the third stage, laying great stress on its proper management in order to minimize blood loss.

In the second, or "appendix", section are found elaborations of topics discussed more or less briefly in the first part of the book. He has devoted much time to the study of the cervix in labor, the characteristics of "good", "fair", and "poor" pains, and the mechanisms of descent and rotation. The various points upon which he lays stress are familiar to every practicing obstetrician, but are not elucidated in most text books as clearly as they should be.

The author has developed a method of estimating the duration of labor in a given case, based on a study of the condition of the cervix, the character of the labor pains, and the station of the head in the pelvis. According to his reports, it works very well. Time will tell whether others will achieve the same success when applying the method according to the author's directions.

E. L. King, M. D.

PUBLICATIONS RECEIVED

Grune & Stratton, Inc., N. Y.: The Labyrinth; Physiology and Functional Tests, by Joseph J. Fischer, M. D.; Studies in Topectomy, edited by Nolan D. C. Lewis, M. D., Carney Landis, Ph.D., and H. E. King, Ph.D.; Venous Return, by Gerhard A. Brecher, M. D.; Psychopathy and Delinquency, by William McCord, Ph.D., and John McCord, Ed. M.

Little, Brown & Co., Boston: Ciba Foundation Colloquia on Ageing, Volume 2, and Ciba Foundation Colloquia on Endocrinology, Volume IX, by various participants.

The C. V. Mosby Company, St. Louis: Clinical Urology for General Practice, by Justin J. Cordonnier, M. D.; J.A.M.A. Queries and Minor Notes, published for the American Medical Association; New Bases of Electrocardiography, by Demetrio Sodi-Pallares, M. D., with the collaboration of Royall M. Calder, M. D.

Philosophical Library, Inc., N. Y.: Sleep, the Way to Sound and Healthful Slumber, by Dr. Marie Stopes.

Henry Regnery Company, Chicago: Observations on Krebiozen in the Management of Cancer, by A. C. Ivy, M. D., John F. Pick, M. D., and W. F. P. Phillips, M. D.

A RESEARCH MILESTONE

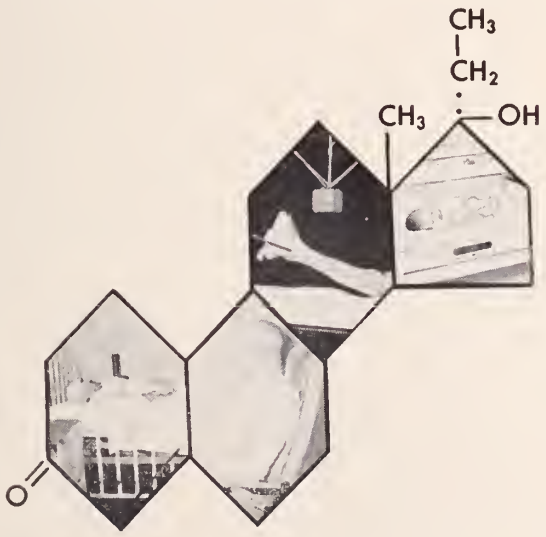
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(BRAND OF NORETHANDROLONE)

Searle's New and Practical Steroid Specifically for Protein Anabolism—

It has long been recognized that a substance which would promote protein anabolism would be of inestimable value in therapy. The androgens have this property, but unfortunately they also exert actions on secondary sex characteristics. These effects are commonly undesirable in therapeutic programs.

THE FIRST STEROID WITH ANABOLIC SPECIFICITY—Nilevar, the newest Searle Research development, therefore, meets a long desired clinical need because Nilevar presents the first steroid primarily anabolic for protein synthesis. Moreover, Nilevar is without prominent androgenic effects (only about one-sixteenth of that exerted by the androgens).



OBJECTIVE AND SUBJECTIVE RESPONSE—Orally effective, Nilevar therapy is characterized by retention of nitrogen, potassium, phosphorus and other electrolytes in ratios indicative of protein anabolism. Moreover, subjectively the patient observes an increase in appetite and sense of well-being.

WELL TOLERATED—Nilevar has an extremely low toxicity. Laboratory animals fail to show toxic effects after six months of continuous administration of high dosages. Nilevar should not be administered to patients with prostatic carcinoma. Nausea or edema may be encountered infrequently. Slight androgenicity may be evidenced on high dosage or in particularly responsive individuals.

MAJOR INDICATIONS—Preparation for and recovery from surgery; supportive treatment of serious illnesses (pneumonia, poliomyelitis, carcinomatosis, tuberculosis); recovery from severe trauma and burns; decubitus ulcers; care of premature infants.

DOSAGE—The daily *adult* dose is three to five Nilevar tablets (30 to 50 mg.) but up to 100 mg. may be administered. For *children* the average daily dose is 1 to 1.5 mg. per kilogram of body weight; individual dosages depend on need and response to therapy.

SUPPLY—Nilevar is available in uncoated, unscored tablets of 10 mg. G. D. Searle & Co., Research in the Service of Medicine.

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SEARLE

ACHROMYCIN



ACHROMYCIN*

Tetracycline *Lederle*

for prophylaxis and treatment of

obstetric infections

Posner and his colleagues[1] have reported on the use of tetracycline (ACHROMYCIN) in 96 cases of obstetric complications, including unsterile delivery, premature rupture of the membranes, endometritis, parametritis, and other conditions. They conclude that this antibiotic is ideally suited for these uses.

Other investigators have shown ACHROMYCIN to be equally useful in surgery and gynecology and virtually every other field of medicine. This outstanding antibiotic is effective against a wide variety of infections. It diffuses and penetrates rapidly to provide prompt control of infection. Side effects, if any, are negligible.

Every gram of ACHROMYCIN is made in Lederle's own laboratories and offered *only* under the Lederle label—your assurance of quality. It is available in a *complete* line of dosage forms, including

ACHROMYCIN SF

ACHROMYCIN with STRESS FORMULA VITAMINS. Attacks the infection, bolsters the patient's natural defenses, thereby speeds recovery. Especially useful in severe or prolonged illness. Stress formula as suggested by the National Research Council.

SF Capsules, 250 mg.

SF Oral Suspension, 125 mg. per teaspoonful (5 cc.)

dry-filled sealed capsules

For more rapid and complete absorption. Offered only by Lederle!

[1]Posner, A. C., *et al.*; Further Observations on the Use of Tetracycline Hydrochloride in Prophylaxis and Treatment of Obstetric Infections, *Antibiotics Annual* 1954-55, pp. 594-598.

Lederle

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HERE'S WHY SO MANY DOCTORS NOW SMOKE AND RECOMMEND

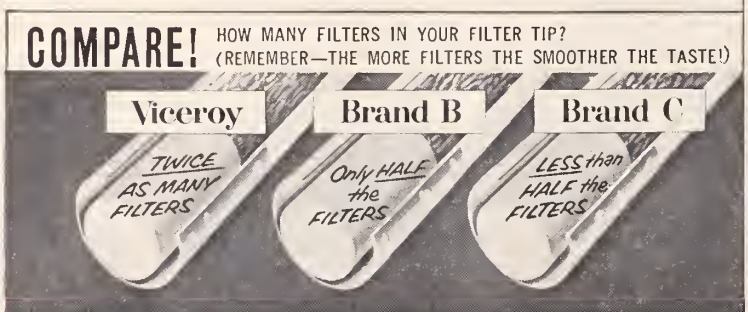
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Upjohn

Ulcer protection that lasts all night:

Pamine* BROMIDE

Tablets

Each tablet contains:
Methscopolamine bromide ..... 2.5 mg.

Average dosage (ulcer):
One tablet one-half hour before meals, and 1 to 2 tablets at bedtime.

Supplied: Bottles of 100 and 500 tablets

Syrup

Each 5 cc. (approx. 1 tsp.) contains:
Methscopolamine bromide ..... 1.25 mg.

Dosage:
1 to 2 teaspoonfuls three or four times daily.

Supplied: Bottles of 4 fluidounces

Sterile Solution

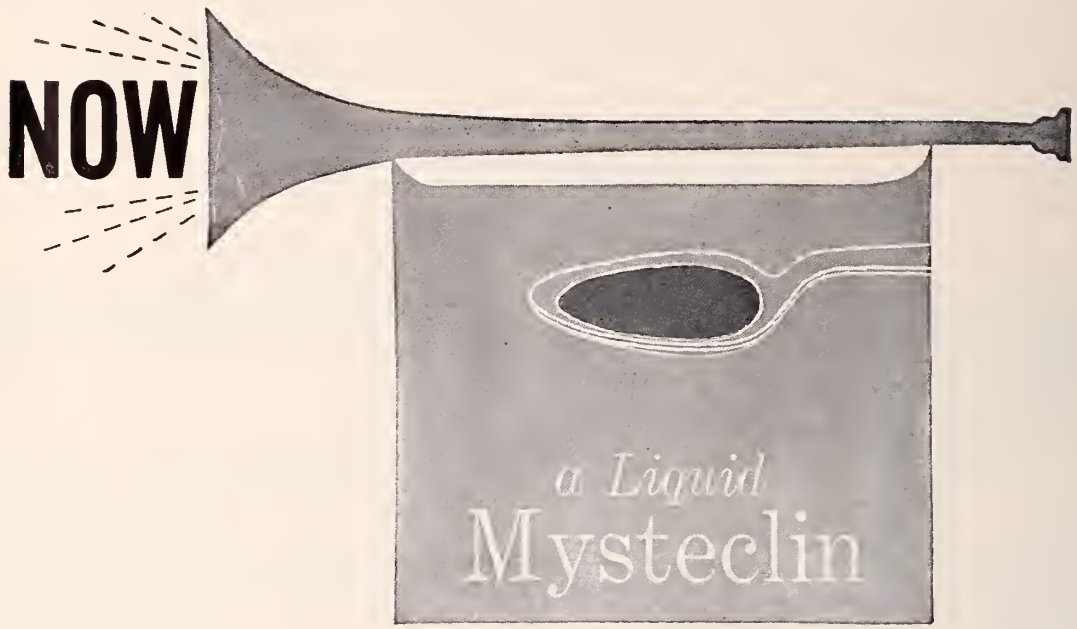
Each cc. contains:
Methscopolamine bromide ..... 1 mg.

Dosage:
0.25 to 1.0 mg. (¼ to 1 cc.), at intervals of 6 to 8 hours, subcutaneously or intramuscularly.

Supplied: Vials of 1 cc.

*TRADEMARK, REG. U. S. PAT. OFF.—THE UPJOHN BRAND OF METHSCOPOLAMINE

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MYSTECLIN SUSPENSION

Steclin-Mycostatin (Squibb Tetracycline-Nystatin)

Another form of the only broad spectrum antibiotic preparation with added protection against monilial superinfection

PLEASANT TASTING — Mysteclin Suspension is pleasantly fruit-flavored and will appeal to taste-conscious youngsters as well as to adults who prefer liquid medication.

BROADLY EFFECTIVE — Mysteclin Suspension provides well tolerated therapy for the many common infections which respond to tetracycline—and also acts to prevent monilial overgrowth.

READY-TO-TAKE — Mysteclin Suspension requires no reconstitution and can be given by simple teaspoon dosage to patients of all ages.

MYSTECLIN SUSPENSION: a fruit-flavored oil suspension containing the equivalent of 125 mg. Steclin (Squibb Tetracycline) Hydrochloride and 125,000 units Mycostatin (Squibb Nystatin) per 5 cc. teaspoonful. Supplied in two-ounce bottles.

Also available as Capsules (250 mg. Steclin Hydrochloride and 250,000 units Mycostatin) and Half Strength Capsules (125 mg. Steclin Hydrochloride and 125,000 units Mycostatin).

SQUIBB *Squibb Quality — the Priceless Ingredient*

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ORAL PENICILLIN FOR *BETTER* AND *MORE CONSISTENT* ABSORPTION

"*Because of the better and more consistent absorption of penicillin V from the intestinal tract, it would appear that this type of penicillin is preferable to penicillin G when oral administration is to be used.*"[1]

1. Martin, W. J., et al.: J.A.M.A. *160*:928 (March 17) 1956.

PEN•VEE•*Oral* and PEN•VEE *Suspension* permit new dependability in oral-penicillin therapy—dependable stability in gastric acid, dependable and optimal absorption in the duodenum. "Not being destroyed by acid in the stomach, as is penicillin G, penicillin V remains available in larger amounts for absorption."[1]

PEN·VEE* *Oral* and *Suspension*

PEN•VEE•*Oral* is Penicillin V, Crystalline (Phenoxymethyl Penicillin)
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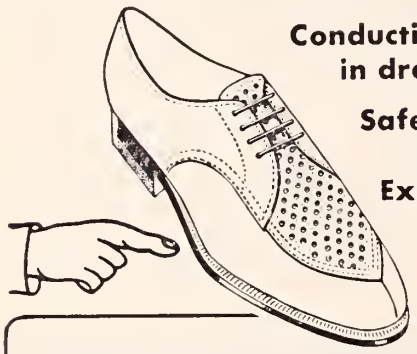
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Complete modern facilities for Insulin-shock and Electro-shock therapy, under constant medical supervision. Psychotherapy. Occupational therapy. All other accepted methods of psychiatric treatment.

NARCOTIC CASES NOT ADMITTED

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Conductive Shoe in dress style

Safety from Fire and Explosion★

- Insole extension and wedge at inner corner of heel where support is most needed.
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★ Conductive Shaes far surgical and aperating room persannel. N.B.F.U. specifications.

- We are also the manufacturer of the Gear-Actian Shae designed by noted arthapedic surgean.
- We make more shoes for palia, club feet and disobled feet than any ather shae manufacturer.

Send for free booklet, "The Preservotion of the Function of the Foot Boloncing and Synchronizing the Shoe with the Foot."

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Foot-so-Port Shoe Company, Oconomowoc, Wis.
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"The mercurial diuretics have the justified reputation of being the most powerful and consistently effective of all diuretic drugs."*

TABLET
NEOHYDRIN®

*Goodmon, L. S., and Gilmon, A.: The Phormacological Bosis of Theropeutics, ed. 2, New York, The Macmillan Company, 1955, p. 847.

07756



excellent

remedy

for a

poor

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INCREMIN*

Lysine-Vitamin Drops

- combines the amino acid, l-Lysine, with vitamins B_1, B_6, B_{12}
- stimulates appetite, effects better utilization of protein, thereby promoting growth
- cherry-flavored drops are delicious; may also be mixed in milk, formula, etc.
- handy 15 cc. plastic dropper-bottle

For the problem eaters, for the underweight, for the generally below-normal child

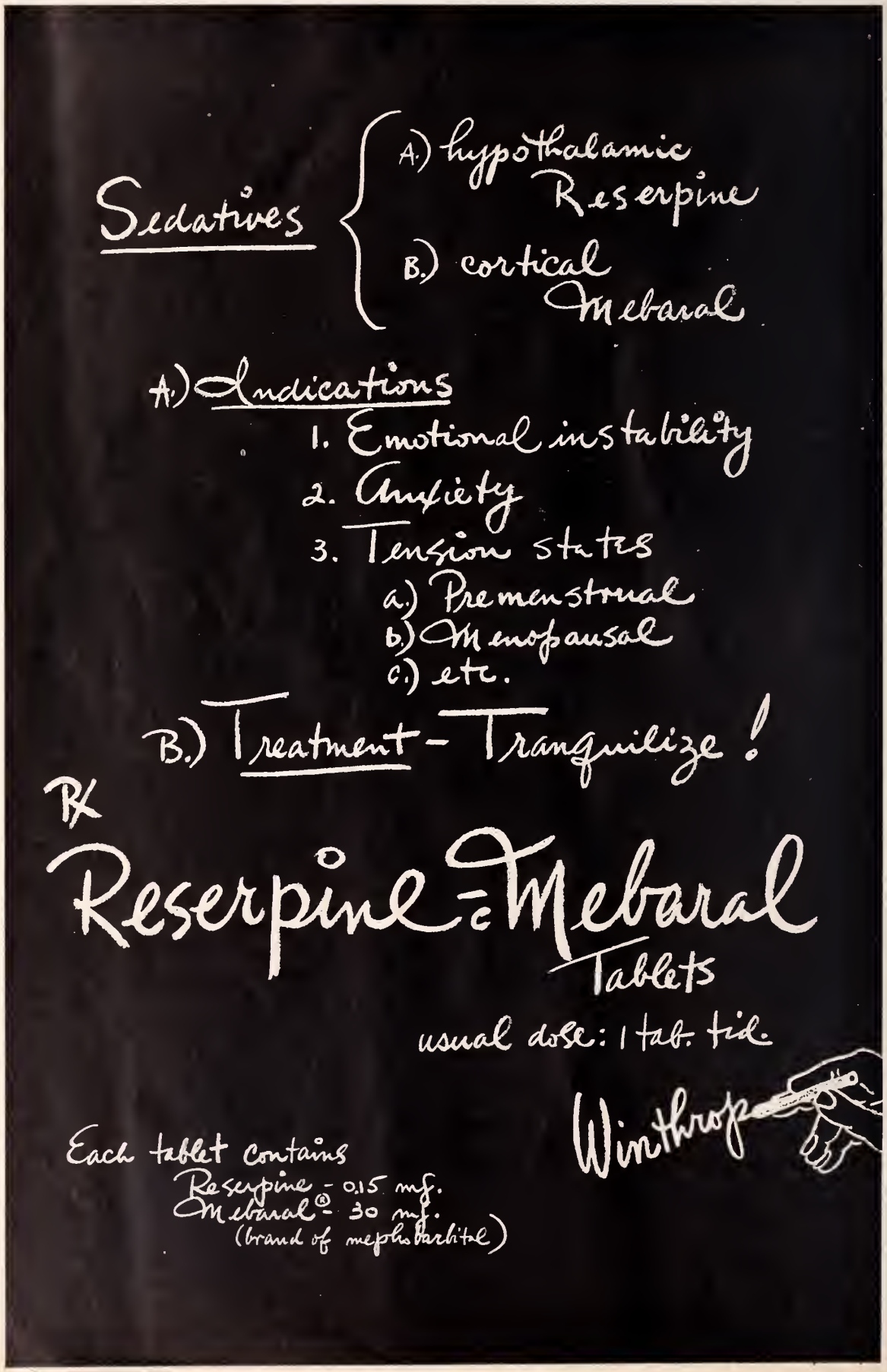
(Excellent, too, for stimulating appetites of the elderly patient!) Dosage: 0.5 to 1 cc. (10-20 drops) daily. Each cc. (20 drops) contains:

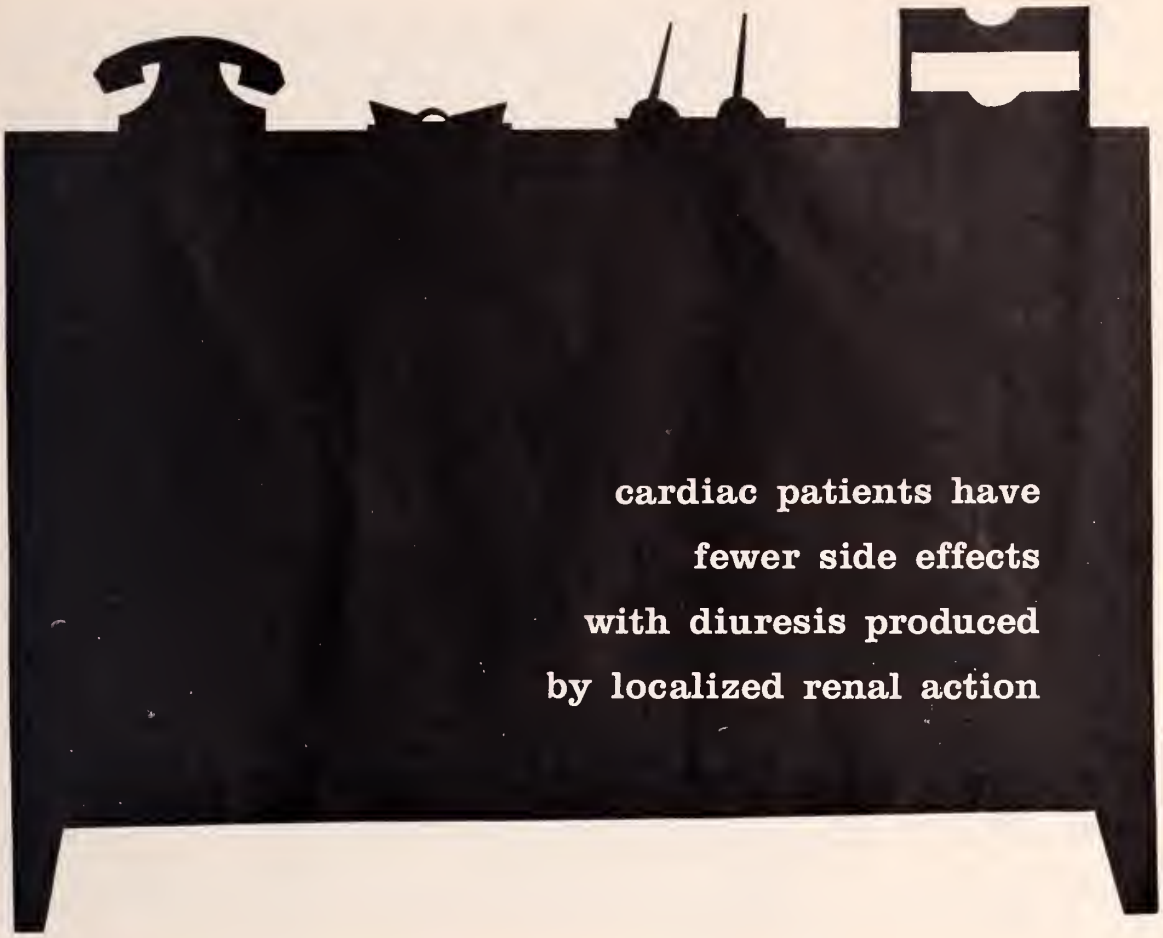
l-Lysine	300 mg.
Vitamin B_{12}	25 mcgm.
Thiamine (B_1)	10 mg.
Pyridoxine (B_6)	5 mg.

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A.) hypothalamic
Reserpine
B.) cortical
Mebaral
A.) Indications
1. Emotional instability
2. Anxiety
3. Tension states
a.) Premenstrual
b.) Menopausal
c.) etc.
B.) Treatment - Tranquilize!
℞
Reserpine-c-Mebaral
Tablets
usual dose: 1 tab. tid.
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Each tablet contains
Reserpine - 0.15 mg.
Mebaral® - 30 mg.
(brand of mephobarbital)



PATIENTS IN FAILURE NEED AN ORGANOMERCURIAL

When acidosis is the diuretic mechanism, as with the carbonic anhydrase inhibitors and acidifying salts, widespread effects on many organs can be anticipated.
In contrast, the dependable diuresis produced by the organomercurials—resulting from enzyme inhibition localized in the kidney—avoids these extrarenal effects.

TABLET

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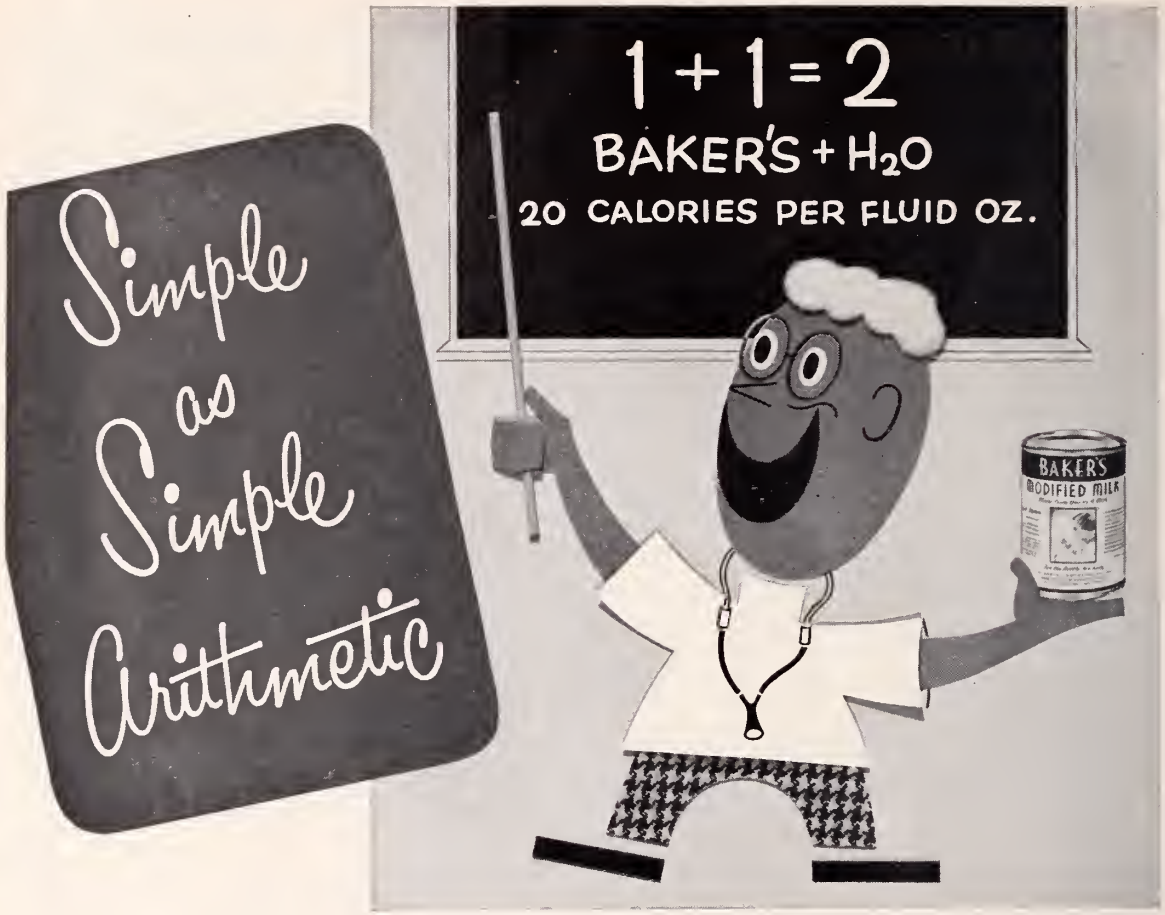
BRAND OF CHLORMERODRIN (16.3 MG. OF 3-CHLOROMERCURI-2-METHOXY-PROPYLUREA EQUIVALENT TO 10 MG. OF NON-IONIC MERCURY IN EACH TABLET)

a standard for initial control of severe failure

MERCUHYDRIN® SODIUM
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LAKESIDE

02656



With little chance of error in Formula Preparation

BAKER'S MODIFIED MILK*

Feeding Directions

Baker's Modified Milk (Liquid)

(Normal dilution for liquid provides 20 calories per liquid ounce.)

	Baker's	Boiled Water
Hospital	1 part	2 parts
First week at home	1 part	1½ parts
After first week at hame	1 part	1 part

Also ovoiloble in powder form. Normol dilution one toblespoon to 2 ounces of woter provides 20 colories per fluid ounce.

Designed for all infant feeding from birth to the end of the first year, Baker's Modified Milk is a time-saver for busy physicians and busy hospitals.

Baker's Modified Milk is furnished gratis to all hospitals for your use.

*Made exclusively from Grade A milk (U. S. Public Health Service Milk Code) which has been madified by replacement af the milk fat with vegetable and animal fats and by the addition of carbohydrates, vitamins and iron.

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relaxes both the body and the mind

well suited for prolonged therapy

- well tolerated, nonaddictive, essentially nontoxic
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- does not produce significant depression
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Indications: **anxiety and tension states, muscle spasm.**

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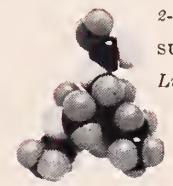
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2-methyl-2-n-propyl-1,3-propanediol dicarbamate—U.S. Patent 2,724,720

SUPPLIED: *400 mg. scored tablets. Usual dose: 1 or 2 tablets t.i.d.*

Literature and Samples Available on Request



THE MILTOWN MOLECULE

in inflammatory skin diseases

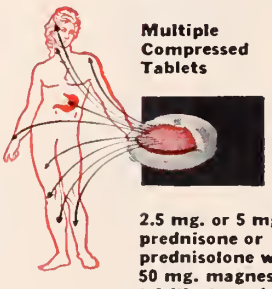


all the benefits of the "predni-steroids"
plus positive antacid action
to minimize gastric distress

ROUTINELY ACHIEVED WITH

'Co-Deltra'
(Buffered Prednisone)

Multiple Compressed Tablets



'Co-Hydeltra'
(Buffered Prednisolone)

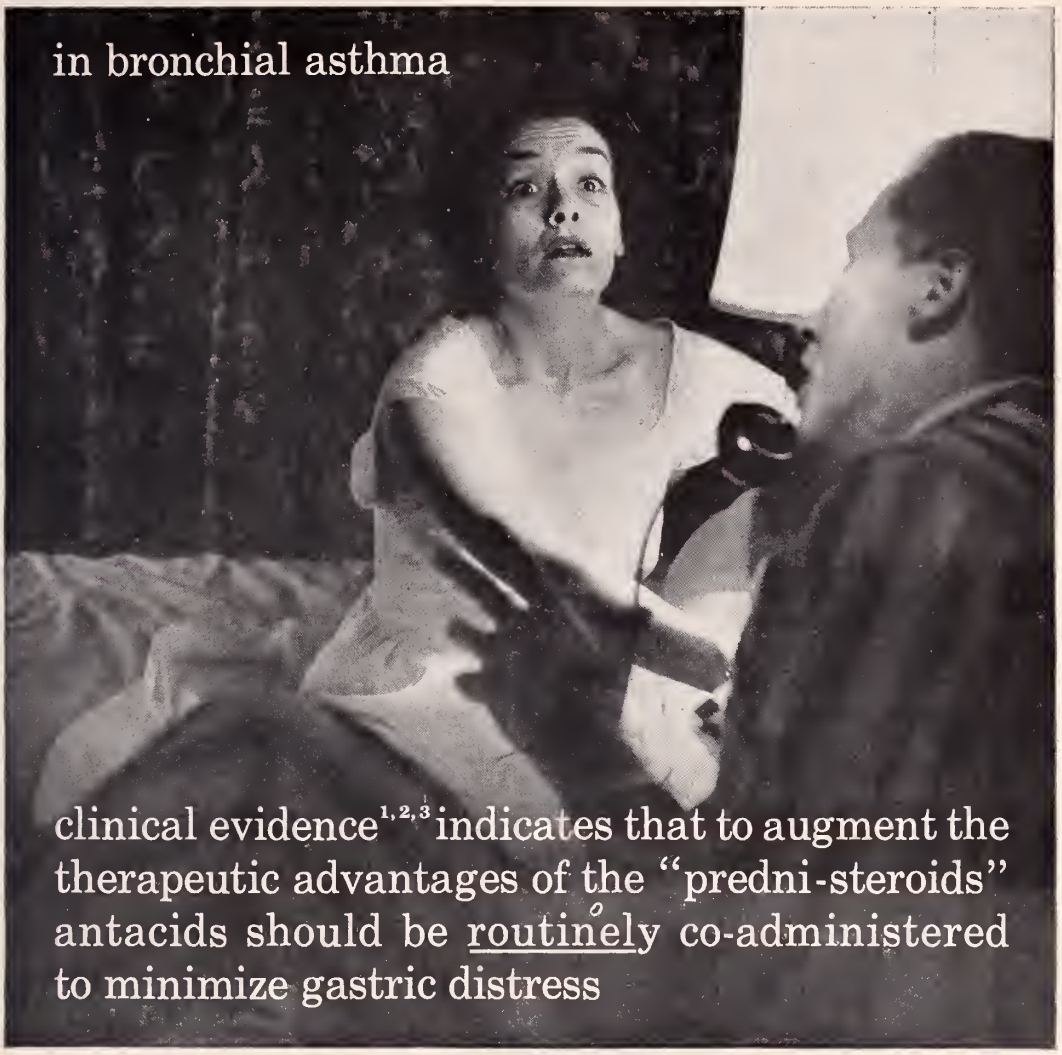
2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

Clinical evidence[1,2,3] indicates that to augment the therapeutic advantages of prednisone and prednisolone, antacids should be *routinely* co-administered to minimize gastric distress.

References: 1. Boland, E. W., *J.A.M.A.* 160:613, (February 25,) 1956. 2. Margolis, H. M. *et al*, *J.A.M.A.* 158:454, (June 11,) 1955. 3. Bollet, A. J. *et al*, *J.A.M.A.* 158:459, (June 11,) 1955.

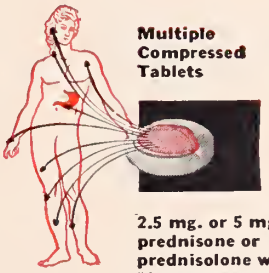
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'Co-Hydeltra'
(Buffered Prednisolone)



Multiple Compressed Tablets

2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

'Co-Deltra'
(Buffered Prednisone)

All the benefits of the "predni-steroids" plus positive antacid action to minimize gastric distress.

References: 1. Boland, E. W., *J.A.M.A.* 160:613, (February 25,) 1956. 2. Margolis, H. M. *et al, J.A.M.A.* 158:454, (June 11,) 1955. 3. Bollet, A. J. *et al, J.A.M.A.* 158:459, (June 11,) 1955.

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Erythromycin in the treatment of osteomyelitis*

8/3/55

CASE SUMMARY

On 6/2/55, patient, male, age 28, fell on an old fracture and refractured the middle third of the right femur, superimposed on an old osteomyelitis.

On 7/7/55, the wound was saucerized and a hemolytic S. aureus (coag. +) was isolated from the osteomyelitis. Disc sensitivities were: penicillin, 10 units; erythromycin, 10 mcg.; tetracycline, 10 mcg.

On 7/15, the patient was placed on erythromycin therapy 400 mgm. q. 6. h. Patient afebrile after erythromycin started. X-rays showed evidence of healing with callus formation. No septicemia and clinical evidence indicates control of the infection.

On 8/3, the cast was removed and leg recast. Wound was in good condition with minimal drainage.

Diagnosis: fracture middle third of right femur, complicated by osteomyelitis.

Result: erythromycin aided healing of the old osteomyelitis and kept the infection under control.

* *Communication to Abbott Laboratories*

specific against

coccic infections

Specific—because you can actually pinpoint the therapy for coccic infections. That's because most bacterial respiratory infections are caused by staph-, strep-and pneumococci. And these are the very organisms most sensitive to ERYTHROCIN—even when in many cases they resist other antibiotics.

filmtab®

Erythrocin®

(Erythromycin, Abbott)
STEARATE

with little risk of

serious side effects

Low toxicity—because ERYTHROCIN rarely alters intestinal flora. Thus, your patients seldom get gastroenteral side effects. Or loss of vitamin synthesis in the intestine. Virtually, no allergic reactions, either. *Filmtab* ERYTHROCIN Stearate (100 and 250 mg.), bottles of 25 and 100. Abbott

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STEARATE

® Filmtab—film-sealed tablets; pat. applied for

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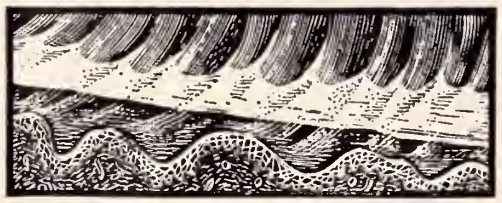
THOROUGH PENETRATION WITH VAGISEC® COMBATS

jelly and liquid

FLARE-UPS

OF VAGINAL TRICHOMONIASIS

VAGISEC liquid is the unique trichomonacide that explodes trichomonads within 15 seconds. It is a proved combination of three chemical agents which penetrates to hidden trichomonads and eliminates failure of treatment and flare-ups due to lack of penetration.



VAGISEC liquid penetrates to trichomonads buried among the vaginal rugae and imbedded in mucus and desquamated cells.

Hidden trichomonads. Trichomonads do not exist in the vaginal secretion alone. They are vigorously motile and burrow deeply into the surface of the vaginal mucosa where cellular debris and mucus cover them. VAGISEC liquid lowers surface tension, penetrates the cellular debris and dissolves mucoid material[1,2] that lines the vaginal wall and lies buried among the rugae. It reaches and explodes hidden as well as surface trichomonads.

Unique overpowering action. VAGISEC liquid combines a chelating agent and two surface-acting agents that act in balanced blend to weaken the trichomonad's cell membrane, to remove its waxes and lipids, and to denature its proteins. The parasite imbibes water, swells up and explodes. No other agent or combination of agents kills the trichomonad in this specific fashion, or with this speed.

Trichomonads explode within 15 seconds. "Motion pictures taken through a phase-contrast microscope at 24 frames per second show that individual trichomonads are destroyed within 10 to 14 seconds after contact . . ." with solution of VAGISEC liquid.[3]

The Davis technique.† The remarkable speed and uniquely effective action of this trichomonacide are the result of the intensive research of its originators, Dr. Carl Henry Davis, well-known gynecologist and author, and C. G. Grand, research physiologist, who introduced the agent as "Carlendacide" and had it clinically tested by more than 150 physicians, including over 100 leaders in obstetrics and gynecology.[2,3] In this extensive evaluation, better than ". . . 90 per cent of apparent cures have been obtained. . . ."[2] For "the small percentage of women who have an involvement of cervical, vestibular or urethral glands, other treatments will be required."[3]

Office treatment. Expose vagina with speculum. Wipe walls dry with cotton sponges and wash thoroughly for about three minutes with a 1:100 dilution of VAGISEC liquid. Remove excess fluid with cotton sponges. Office treatments are an integral part of the Davis technique.

Home treatment. Prescribe both VAGISEC liquid and jelly. Patient douches with VAGISEC liquid every night or morning and then inserts VAGISEC jelly. Home treatment is continued through two menstrual cycles, but omitted on office treatment days. Douching contraindicated in pregnancy.

Summary. VAGISEC liquid penetrates to hidden trichomonads and explodes them in 15 seconds. VAGISEC jelly and liquid are nontoxic and non-irritating, leave no messy discharge or staining. VAGISEC liquid and jelly have been clinically tested and proved a remarkably fast-acting, effective treatment for vaginal trichomoniasis.

Active ingredients: Polyoxyethylene nonyl phenol, Sodium ethylene diamine tetra-acetate, Sodium dioctyl sulfosuccinate. In addition, VAGISEC jelly contains Boric acid, Alcohol 5% by weight.

1. Davis, C. H.: Am. J. Obst. & Gynec. *68*:559 (Aug.) 1954.
2. Davis, C. H.: West. J. Surg. *63*:53 (Feb.) 1955.
3. Davis, C. H.: J.A.M.A. *157*:126 (Jan. 8) 1955.

†Pat. App. for

VAGISEC is a registered trade-mark of Julius Schmid, Inc.

JULIUS SCHMID, INC., *gynecological division*

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Planning the Low-Purine Diet for a long run...

Imagination is essential in adding interest to this diet since your patient may have to follow it for many years. These diet "do's" can show him how to use eggs, cheese, and milk—a trio of almost purine-free foods—to supply the major portion of his protein.

In these, the trio plays a solo—

Eggs baked in pimiento-flecked cheese sauce are hard to resist. Or, if your patient prefers, the same gay and tempting sauce can be poured over hard-cooked eggs.

A casserole of eggplant and tomatoes layered alternately with ricotta or cottage cheese makes a satisfying entree. Add a sprinkle of grated parmesan with a fine Italian hand.

Your patient may like his eggs poached in tomato juice. Serve them in a soup bowl with a frill of chopped parsley on top.

In these, the trio plays accompaniment—

Ham 'n' egg rolls come hot or cold. For hot, roll a warm slice of ham around eggs that have been scrambled with a pinch of savory. For cold, roll a ham slice around egg salad mixed with cottage cheese.

Oyster stew can be creamy without cream when the milk is bolstered with dry skim milk powder. A pinch of thyme and some chopped parsley add savor.

Broiled salmon or tuna-burgers nestle nicely in a nest of noodles. A slice of cheese on top adds color and comes out of the broiler a bubbling brown.

These are only a few of the possible combinations of this versatile trio. And the adequate protein nutrition they make possible, plus a liberal intake of fluids—including beer* if your patient's condition allows—may help establish a regimen that will please you both.



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Beer — America's Beverage of Moderation

*104 Calories, 17 mg. Sodium/8 oz. glass (Average of American Beers)

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Wine—the classic beverage
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No longer is its use based solely on tradition or psychological appeal, for extensive research is pointing up the physiological value of wine as an aliment as well as a pleasant aperitif.

We now know *why* a glass of Port, Sherry, Burgundy, Sauterne—
depending on individual taste—can aid
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We know, moreover, that wine possesses significant vasodilating, diuretic and relaxant properties of value in the field of cardiology,
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Directions for making the Knox Gelatine drink in every package

Brittle, fragile or laminating fingernails are the bane of many a woman's existence. Yet this highly prevalent and distressing condition often has gone uncontrolled for lack of effective therapy. Now, you can promise these patients substantial relief in a large percentage of cases.

In a recent study[1] that confirmed previous work[2] Knox Gelatine was used to treat 36 women with fragile, brittle, laminating fingernails. The response was most gratifying. Except for three patients who discontinued the therapy, three diabetics, and two women who had congenital deformities, the splitting ceased and all other patients were able to manicure their nails to a full point by the time the study ended.

Optimal dosage proved to be one envelope (7 grams) of Knox Gelatine administered daily for three months. Efficacy has not been established with lesser dosage. If you would like more complete details of this work, just use the coupon.

1. Rosenberg, S. and Oster, K. A., "Gelatine in the Treatment of Brittle Nails," *Conn. State Med. J.* 19:171-179, March 1955.
2. Tyson, T. L., *J. Invest. Dermat.* 14:323, May 1950.

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Professional Service Dept. SJ-19
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Please send me a reprint of the article by Rosenberg and Oster with illustrated color brochure.

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. . . part of *every illness*

ANXIETY

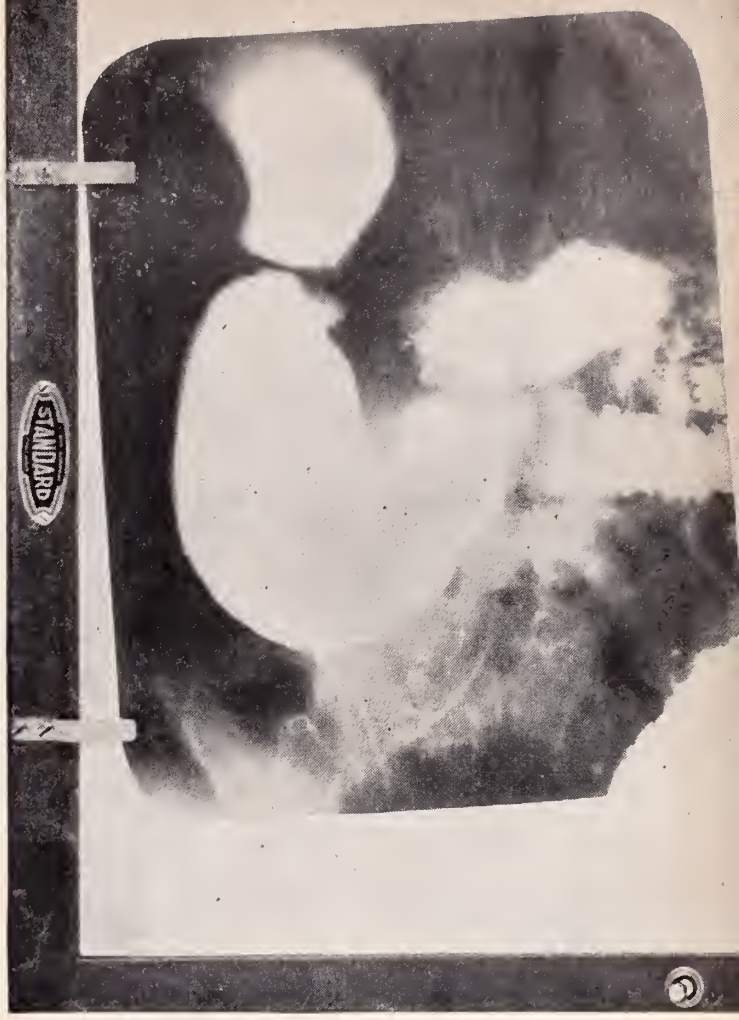
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". . . functional nervousness, including fatigue and anxiety, was by far the greatest detectable cause of recurrences of peptic ulcer symptoms, and in many instances it seemed likely that the same etiological factors were initially responsible for the ulcer."[1]

Peptic ulcer is a combination of the emotional and the physical. For total management, a combination of measures is often indicated. EQUANIL adds to the adequacy of routine treatment by countering psychic stress as a stimulant to vagal activity. It combats the anxiety and tension, and encourages restful sleep.[2]

In every patient . . . a valuable adjunct to the customary therapy

Supplied: Tablets, 400 mg., bottles of 50.
Usual Dose: 1 tablet, t.i.d.

1. Weiss, E., and English, O.S.: Psychosomatic Medicine. W. B. Saunders Co., Philadelphia, 1949, p. 358.
2. Lemere, F.: Northwest Med. *54*:1098 (Oct.) 1955.

anti-anxiety factor with muscle-relaxing action

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Philadelphia 1, Pa.



Most people are able to talk freely to their physician about every aspect of their treatment—*except one*. The question, "How much is it going to cost?" and of how payment is to be made, often leaves the frankest patient tongue-tied.

Many refrain from bringing up the subject out of a sincere respect for their doctor, supposing it somehow unbecoming to talk to him about money. Many professional societies are now trying to clear up this misconception. For example, you may have noticed a significant plaque which hangs in thousands of physicians' waiting rooms. It says:

"To all my patients—I invite you to discuss frankly with me any questions regarding my services or fees. The best medical service is based on a friendly mutual understanding between doctor and patient."

Sometimes, of course, your doctor cannot tell you, in advance, precisely what a course of treatment or an operation is going to cost. But you will always find him willing to discuss the subject, and to tell you if he can. Today more than ever before in medical history, the bill your doctor sends you can represent one of the really big bargains of your life—in terms of health, happiness and peace of mind.

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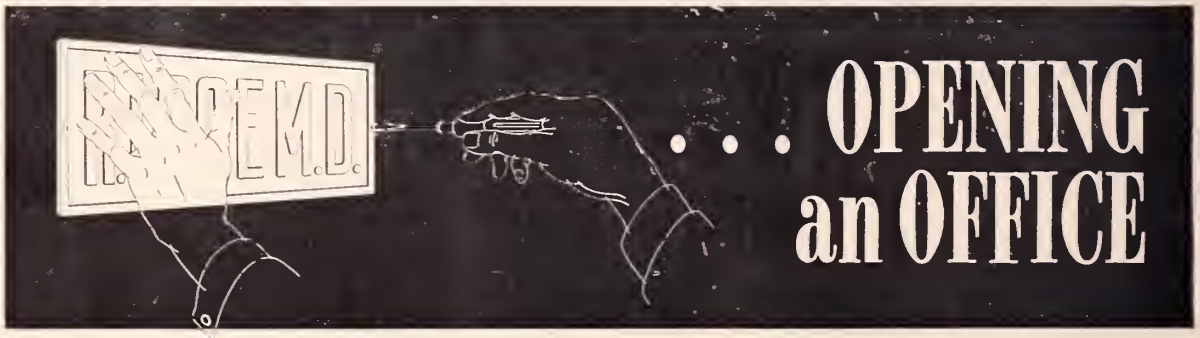
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"Patients without primary renal disease, but with albuminuria and high nonprotein nitrogen due to congestive circulatory changes, can be adequately and safely treated with Neohydrin for long periods of time."*

*Griffith, G. C.; Dimitroff, S. P., and Thorner, M. C.: Ann. Int. Med. 45:7, 1956.

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- Hence, reserpine is not the total active antihypertensive principle of the rauwolfia plant.
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1. Cronheim, G., and Toekes, I. M.; Comparison of Sedative Properties of Single Alkaloids of Rauwolfia and Their Mixtures, Meet. Am. Soc. Pharmacol. & Exper. Therap., Iowa City, Iowa, Sept. 5, 1955.

2. Moyer, J. H.; Dennis, E., and Ford, R.: Drug Therapy (Rauwolfia) of Hypertension. II. A Comparative Study of Different Extracts of Rauwolfia When Each Is Used Alone (Orally) for Therapy of Ambulatory Patients with Hypertension, A.M.A. Arch. Int. Med. *96*:530 (Oct.) 1955.

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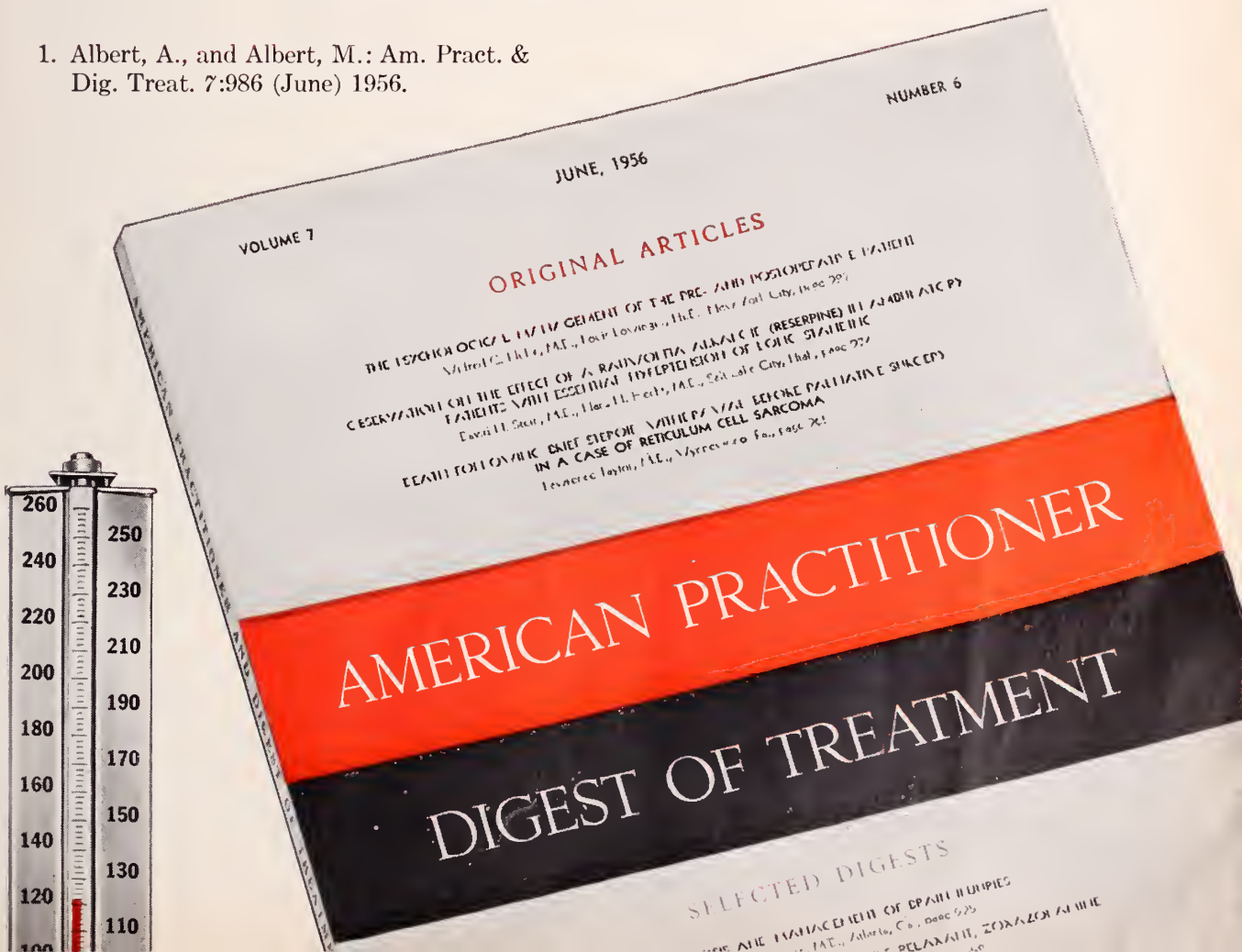
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1. Albert, A., and Albert, M.: Am. Pract. & Dig. Treat. 7:986 (June) 1956.



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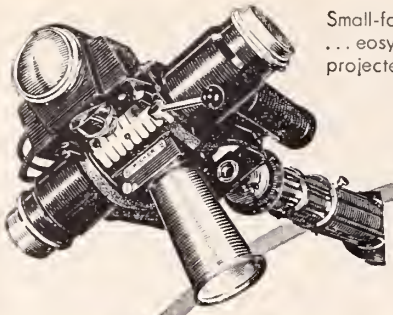
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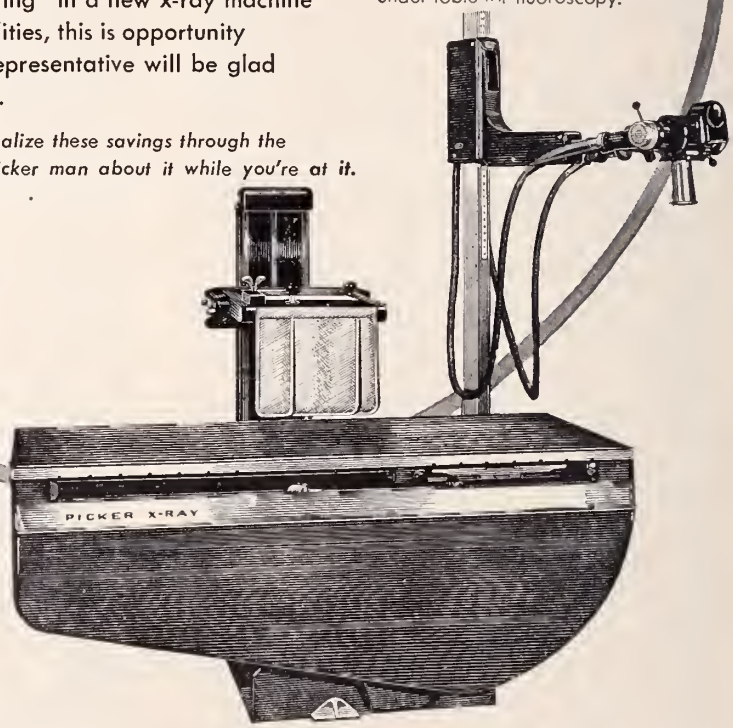
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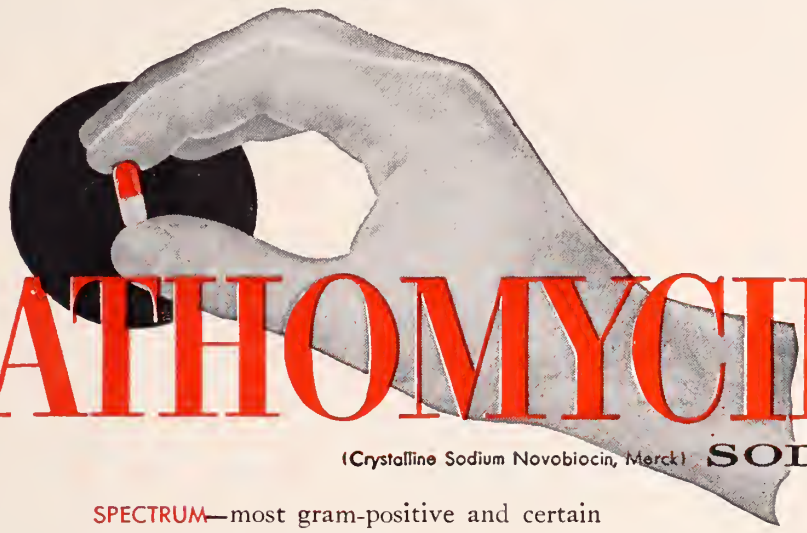
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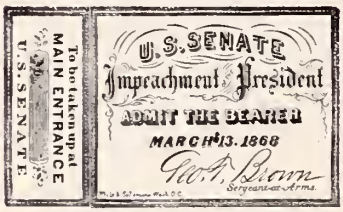
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Five leading authorities in cancer and medical research have recently completed consultations with World Health Organization officials in Geneva. According to Dr. M. G. Candau, Director-General of the WHO, the purpose of the meetings was to explore ways in which the Organization could effectively assist and complement the vast national efforts being made in cancer research. The consultants agreed that the WHO could make valuable contributions in five areas: information on prevalence of cancer; establishment of international standards and definitions of various types of cancer; encouragement of research; assistance in training cancer workers; co-ordination and liaison. The World Health Organization, one of the largest of the specialized agencies of the United Nations, has 85 member countries in all parts of the world.

* From Vol. X, No. 1 ACS **Cancer News.**



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NOVEMBER, 1956

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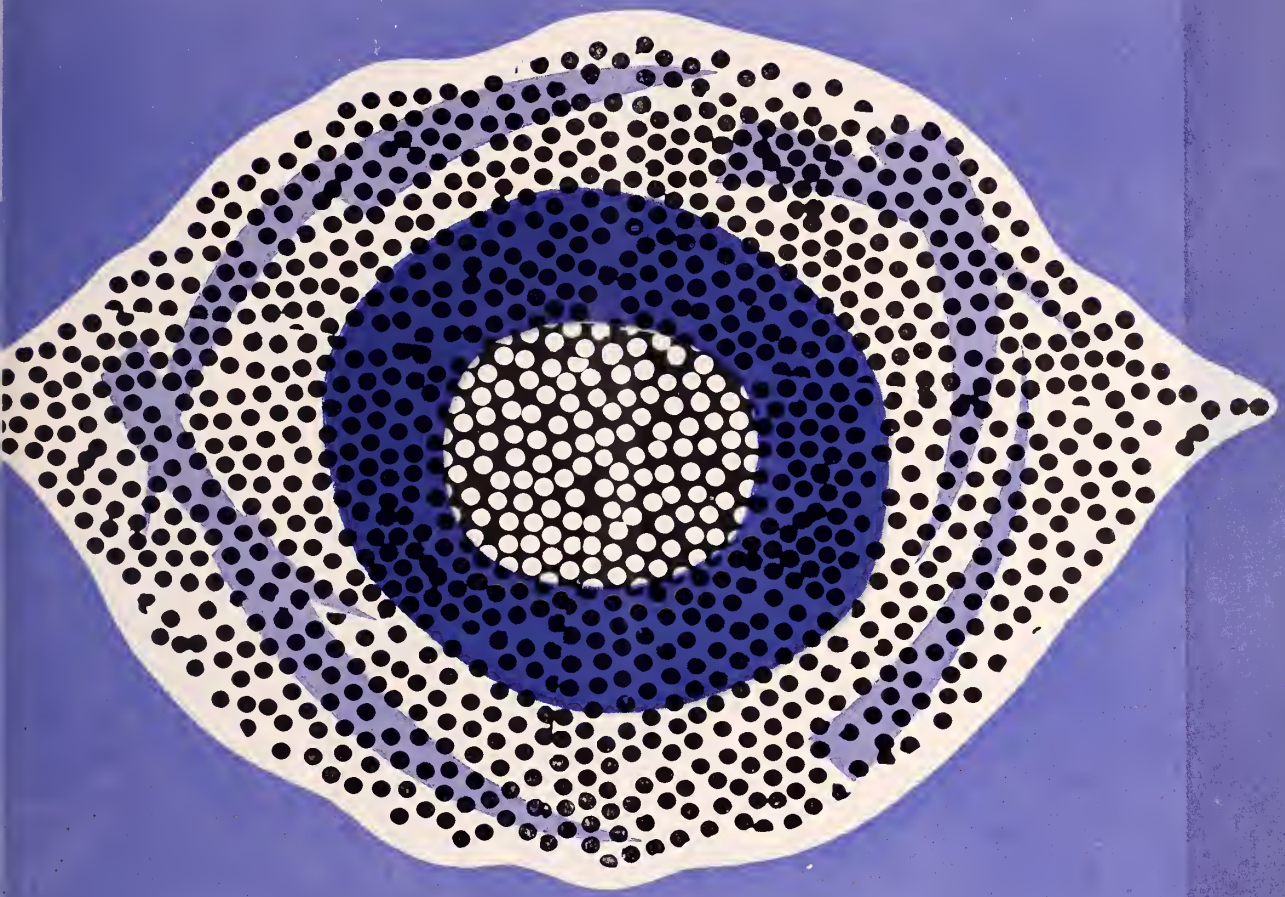
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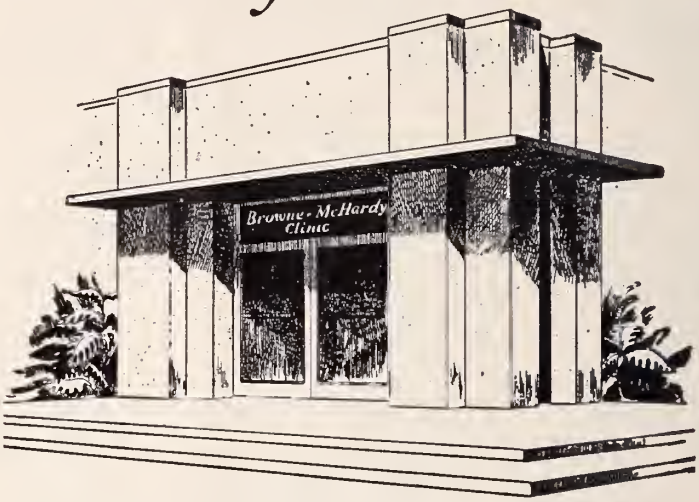
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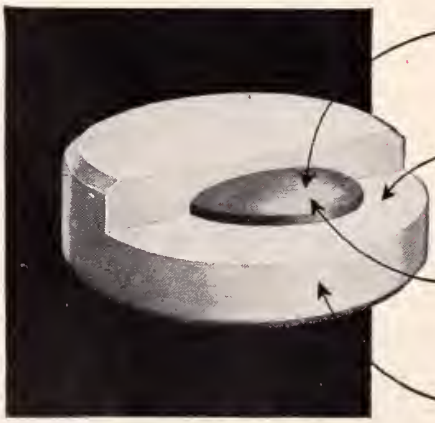
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ABDOMINAL WOUND COMPLICATIONS IN OBSTETRIC AND GYNECOLOGIC SURGERY *

FRANK G. NIX, M. D.
GEORGE F. SUSTENDAL, M. D.
CONRAD G. COLLINS, M. D.
FREDERICK R. BRADEN, M. D.
NEW ORLEANS

Despite adherence to the precepts of Halstead, the advent of better detergents, antiseptics, blood transfusion, vitamins, amino acids for intravenous use, and antibiotics, wound complications continue to occur. It is our feeling that if wounds in which suspected hematoma, abscess, seroma, dehiscence, or evisceration, alone or in combination, were explored in the operating room rather than in the patient's room or ward, the more serious early or late complications might be reduced or avoided.

Massive evisceration with large amounts of protruding omentum and/or bowel with a long time interval between its occurence and repair certainly is not conducive to lower mortality. Furthermore, disruption of the wound involving the fasciae layers, even though the peritoneum is intact is a fertile field for the development of postoperative incisional hernias. Obstetricians have learned the value of not examining a patient with suspected placenta praevia anywhere except in the delivery room or surgical amphitheatre, where all available facilities for the control of hemorrhage and the performance of any operative procedure are immediately available. The same attitude regarding wound complications has been adopted by the Tulane Gynecological Service at Charity Hospital in New Orleans. If a wound complication is suspected, removal of sutures, probing of the wound in the patient's room, or a "watch and wait" attitude are not utilized; the patient is removed to the operating room, which has been set up for laporatomy. Here the sutures are removed from the skin and the wound explored. Anesthesia is administered if necessary. Abscesses, seromas, and hematomas are thoroughly evacuated. The integrity of the fascial suture line is determined. If the latter shows any evidence of disruption in continuity, the sutures in the fascial layer are removed, and the line of peritoneal sutures explored. Any collection of blood, pus, or serum is evacuated and active bleeding points ligated. Defects in the peritoneum and/or fascia are repaired. This policy was begun in June, 1946, in one ward of the Tulane Unit and since January, 1949, it has been in effect on all the gynecologic and obstetric wards assigned to the Tulane Unit. Our experiences and results with this procedure form the basis of this communication.

MATERIAL

The material of this study was collected at Charity Hospital during the ten years from January, 1946, through December,

---

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, Alexandria, La., April 24, 1956.

From The Dept. of Obstetrics and Gynecology, Tulane University and Charity Hospital, New Orleans, La.

1955, and includes 5200 consecutive gynecologic laporatomies. These operations cover the full scope of gynecologic abdominal surgery. The material consists of 140 cases of wound explorations with subsequent secondary closure in which the mortality rate was 5.7 per cent. The complications range from superficial abscesses and hematomas through complete eviscerations. There were 31 total eviscerations in this series with an incidence of 0.6 per cent and a mortality of 19 per cent; 20 of these were discovered at the time of exploration, a discovery rate of 64.5 per cent. Also discovered during the course of exploration were 40 wound ruptures that extended to the peritoneum exclusive of complete evisceration, a discovery rate of 37 per cent. There were 8 deaths with an uncorrected mortality of 5.7 per cent, considerably under the national average. This death rate could be further corrected.

The indications for wound exploration with their corresponding frequency of occurrence are listed in Table 1. Exploration findings and degree of involvement are tabulated against the pre-exploration diagnosis. (Table 1)

GENERAL FACTORS

Certain general factors have been given extensive consideration in all studies of wound disruption. These are discussed below.

Age: In the general literature an average age of 44 years is reported for wound disruption. In our series the average age was 43, with the youngest being 17 years and the oldest patient 86 years. The patients were grouped more or less according to the usual age for gynecologic surgery. (Table 2.)

TABLE 2
INCIDENCE OF WOUND DISRUPTION BY AGE GROUPS

Age (years)	Number of wound complications	Number of eviscerations
10 - 19	3	0
20 - 29	17	3
30 - 39	33	11
40 - 49	66	10
50 - 59	12	4
60 - 69	4	2
70 - 79	3	1
80 - 89	2	0

Malnutrition: Lack of proper nutrition with consequent anemia, low serum protein, and avitaminosis have been discussed as contributing factors to wound complications.[1] Although all patients in this series were of a clinical level with the exception of those cases done as emergency, an attempt was made to stabilize the nutrition of all patients. This was revealed by the fact that in 140 cases with complications the hematocrit was normal in 48 per cent, high in 16 per cent and low in 36 per cent. In the 118 patients in whom plasma protein levels were recorded, 30 per cent had high levels, 18 per cent were low, and 52 per cent were normal; 80 per cent of these patients received intravenous vitamin C at the time of the initial operation.

Malignancy: 112 cases or 80 per cent of the patients with wound disruption were operated upon for benign lesions; 28 cases or 20 per cent had proven malignancies; of the 31 cases that eviscerated 22 of the cases or 72 per cent were in the former group and the remaining 9 cases or 30 per cent had been operated upon for a malignant lesion.

Anesthesia: Of the 140 patients with wound disruption 56 per cent received

TABLE 1
PRE-EXPLORATION DIAGNOSIS, EXPLORATION FINDINGS, AND DEGREE OF INVOLVEMENT IN CASES OF WOUND COMPLICATIONS

Diagnosis prior to exploration	No.	%	Exploration			Involvement		Total
			Hem.	Abs.	Ser.	Fascia	Periton.	
Hematoma	64	46.4	59	4	2	40	25	0
Abscess	31	21.4	0	31	0	18	9	3
Seroma	7	5.0	4	0	3	4	3	0
Tenderness	5	3.6	5	0	0	4	1	0
Evisceration	28	20.0	3	5	14	0	0	27
Bleeding	5	3.6	4	0	0	2	2	1

spinal anesthesia at their initial surgery; 39 per cent received inhalation anesthesia, and the remaining 5 per cent were performed under local infiltration. Spinal anesthesia, when not contraindicated, is the anesthetic of choice on the Tulane service.

Incision: The type of incision has been credited with a major role in wound disruptions. Some authors [2, 3] state that anatomic incisions, such as the transverse, are superior to longitudinal incisions. In any study that includes only gynecologic cases the longitudinal incision, principally the subumbilical midline is bound to predominate. That is true in this study. In 89.4 per cent of these cases the incision was located in the midline; 7.1 per cent were of of the paramedian type; and in 3.5 per cent a transverse incision was used.

Closure: The type of closure in wound disruption has always been a matter of dispute.[4] All of these cases were closed in anatomic layers. The suture materials used are indicated in Table 3. Retention sutures were not used. The vast majority of the 5200 cases were closed with interrupted cotton sutures. (Table 3).

TABLE 3
INCIDENCE OF WOUND DISRUPTION BY TYPE OF CLOSURE

Periton.	Fascia	Skin	Incidence of complications %	Incidence of evisceration %
G	C	C	65	56
C	C	C	14	28
G	G	C	14.4	12
G	G	S	2.6	4
G	S	S	2.6	0
Figure of 8			1.4	0

G—catgut C—cotton S—silk

Race: 79 per cent of our wound complications occurred in individuals of the colored race. While it is true that our negro gynecologic service at Charity Hospital is somewhat larger than the white service, the difference is not enough to account for this predominance. It was felt that the presence of many of these complications was due to deficient personal hygeine. Initially it was the practice on this Service to do vaginal and abdominal preparations, employing a through scrubbing with tincture of green soap followed by ether and merthiolate. For the last few years, only a thorough scrubbing with phisohex, has been employed. Despite this fact, approximately 25 per cent of our wound complications were due to infection.

POSTOPERATIVE FACTORS

Increased intra-abdominal pressure is always discussed as a major cause of wound disruption.[5] In our series, however, only 46 patients, or 33 per cent gave any indication of abnormal distention. It has been and is a policy of the service to introduce nasogastric suction at the first sign of distention. Thus it is possible that early distention may not have been recorded in some of these patients. Eighteen per cent had increased intra-abdominal pressure due to coughing; 14 patients or 10 per cent had their postoperative course complicated by vomiting. In only 1 patient was sneezing noted to be the cause of evisceration.

DIAGNOSIS

The diagnosis in most of these cases was made at the operating table; this was our intention. Any wound that showed unusual fluctuance or induration, the presence of discharge (purulent, bloody, or serosanguinous), or unusual tenderness were all explored. The average time of wound exploration was the seventh day, or about the time that the sutures would ordinarily be removed. However, 5 cases were explored on the first postoperative day in the presence of active bleeding, and 2 cases were explored as late as the thirtieth day in the presence of wound infection. The greatest spread of explorations occurred between the sixth and tenth day. These wounds, with the exception of wound infections which were packed open and resutured at a later date, were all closed for the second time at the time of exploration. In almost all cases through and through sutures were used, either in the form of a mattress or figure of eight suture; nonabsorbable materials were used in all cases. The vast majority of these patients were closed with crochet cotton. In no instance was a patient so sick as to be unable to stand secondary

closure. In only 3 cases was tertiary closure necessary. (Table 4)

TABLE 4
MORTALITY IN WOUND DISRUPTION

Year	Evisceration	Deaths
1946 - 47	2	0
1947 - 48	2	1
1948 - 49	5	0
1949 - 50	5	1
1950 - 51	8	2
1951 - 52	5	3
1952 - 53	1	0
1953 - 54	1	0
1954 - 55	2	1

CASE REPORTS

Case No. 1.—E.T. a 38 year old colored female who had a caesarian section at six months gestation when almost moribund from porphyria. She eviscerated on the seventh day after suture removal and died on the eighth. The final diagnosis was porphyria with evisceration.

Case No. 2.—E.H. a 56 year old colored female with a diagnosis of adenocarcinoma of fundus. At operation she was found to have generalized carcinomatosis. A hysterectomy was done, the patient's sutures were removed on the tenth postoperative day and evisceration occurred. She died on the twenty-seventh postoperative day with a diagnosis of generalized carcinomatosis with evisceration.

Case No. 3.—H.B. a 48 year old colored female who had a total abdominal hysterectomy and bilateral salpingo-oophorectomy for multiple fibroids. Her sutures were removed on the eighth postoperative day and her wound was explored on the sixteenth postoperative day. A wound abscess was found extending to the peritoneum. She died on the twenty-fifth postoperative day of a brain abscess and had a final diagnosis of brain abscess with thrombocytopenic purpura.

Case No. 4.—C.R. a 33 year old colored female who had a caesarian section (elective repeat section). Her wound was explored on the first postoperative day because of active bleeding. She died on the ninth postoperative day from lower nephron nephrosis as a result of an incompatible blood transfusion.

Case No. 5.—B.K. a 20 year old colored female who had a caesarian section with a diagnosis of eclampsia and abruptio placenta. Her wound was explored on the eleventh postoperative day and a hematoma was found extending to the peritoneum. This was evacuated and the wound closed. She died on the twenty-ninth post-operative day in convulsions. A cerebral thrombosis was found.

Case No. 6.—F.L. a 33 year old colored female who had a pelvic exenteration for recurrent cancer of the cervix. Sutures removed on the tenth postoperative day. Wound explored on the tenth day and an abscess was found extending into the pelvis, the abscess was drained and the wound closed secondarily with drainage. She expired on the eighteenth postoperative day with diagnosis of peritonitis, pyelonephritis and evisceration.

Case No. 7.—P.J. a 37 year old colored female who had had a total abdominal hysterectomy and bilateral salpingo-oophorectomy for Grade IV cancer of cervix, done in another hospital. She was admitted for recurrent cancer of cervix. At laparotomy, the recurrence was found to be inoperable. Sutures were removed an the eighth postoperative day. Complete wound dehiscence occurred on the ninth postoperative day. At exploration an abscess was found extending into the peritoneal cavity. Secondary closure with drainage was done and the patient was discharged on the twenty-eighth postoperative day. She died two months later at home from metastatic carcinoma.

Case No. 8.—W.McC. a 65 year old white female admitted for recurrent cancer of the cervix following irradiation. Sutures removed on the seventh day and wound inspected. Hematoma extending to peritoneum found and secondary closure done. Developed bilateral ureteral obstruction on ninteenth day, and in spite of catheter drainage patient died of overwhelming sepsis. Final diagnosis was necrotizing papilitis and severe pyelonephritis.

DISCUSSION

A comparison of the results of our work and those of other authors may be obtained by referring to Table 5.[6-13] It is apparent from this table that our mortality at the time of this publication is considerably lower than that existing under other forms of treatment.

Mayo and Lee with a mortality of 18.1 per cent compared to our mortality rate of 19 per cent have published the lowest figures to date. Other mortality figures varied from 30 to 50 per cent.

The apparent effectiveness of this form of treatment may be somewhat enhanced by the fact that all of our incisions were of the lower abdominal type and in most cases midline. This type of incision is less prone to wound rupture than those involving the upper abdomen. Another factor that may have influenced our figures is the fact that wound rupture is more apt to occur in the male than in the female. However, our percentage of malignancies in this series is somewhat higher than the

TABLE 5
RESULTS OF MANAGEMENT OF ABDOMINAL WOUND COMPLICATIONS BY SEVERAL AUTHORS

Author	No. Cases	Ave. Age	% Female	% Malig.	% Ob. & Gyn.	% Mortality	% Infect.	% Lower Abdom. Incision
Charity Hospital	140	43	100	20	100	19	25	100
Fallis	50	45	45	16.3	28.6	34	20	47
Glenn et al.	22	50	9	27	0	45.5	27.2	32
Hinton	19	42	30	10.5	0	21	16	5
Singleton	61	36	73	6.5	65.5	31	60.7	85
Totten	47	45	20	15	8.5	40	36	49
Mayo et al.	94	54	11.7	39.4	0	18.1	0	25.5
Bowen	34	45	41	35.5	17.6	50	12	44

average and would favor a higher percentage of wound ruptures and an increase in mortality because of the accompanying debility.

CONCLUSION

It is our feeling that the routine exploration of all suspected wound complications is a worthwhile procedure. This is supported by the fact that of 31 eviscerations 64.5 per cent were discovered before the actual occurrence of extrusion of abdominal contents through the skin wound, making it possible to handle these cases under sterile technique in the operating room. Of 109 other complicated cases, 36.7 per cent were found to have involvement extending to the peritoneum which would invariably result in postoperative hernia. It is our opinion that in no other way than by proper exploration of these wounds would it have been possible to discover many of these cases and prevent future surgery. We firmly believe that this method of management of wound complications has considerably reduced our death rate from evisceration.

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DISCUSSION

Dr. Rodney G. Masterson, (Alexandria): Wound disruption is a disagreeable (and frequently a fatal) complication of abdominal incisions. Dr. Nix has given us an excellent analysis of a large series of cases. Since this is a continuation of the series of cases presented by Dr. Conrad Collins in his original study of 2,700 cases from the years 1946 to 1951 (which appeared in the Green Journal of Obstetrics and Gynecology), we are able to evaluate the continued careful handling of abdominal wound complications. Dr. Nix has re-emphasized the importance of early and deliberate exploration of wound complications as a surgical problem, thereby reducing mortality.

Wound disruptions are hazardous complications, and are usually a local manifestation of a generalized failure of the healing process. Local factors, with the exception of infections, are rarely of great significance. Urgent need for operative intervention precludes satisfactory preoperative preparation of the patient. Deaths following wound disruptions are usually due to factors other than the disrupted wound.

The utilization of various suture material is an interesting topic for discussion, but not a basis for major controversy. Standardization of a good technique, as utilized in this Tulane Teaching Service is the essential factor.

One important factor in the current ever-

lowering incidence of wound disruption appears to be the adoption of the transverse incision in both the lower and upper abdomen. I personally utilize the lower transverse incision whenever possible. But the longitudinal incision is indicated in many instances.

In such a large teaching service it is necessary to standardize a good technique for many operative procedures; therefore, there are enough disadvantages to the transverse incision to overshadow its advantages in such a large teaching service.

In the present day of antiseptic and aseptic surgery, clean surgical wounds are expected to heal without infection. But in any large series, the number of postoperative infections in clean wounds will always be in the percentage column of complications.

The degree to which wound infections contribute to disruption is debatable. In the first series of cases presented by Dr. Collins, there were 26 wound abscesses, or 30 per cent of wound complications were due to abscess. The preoperative abdominal preparation in these cases consisted of tincture of green soap, ether and merthiolate.

In the second series presented by Dr. Nix, the total number of abscesses was markedly reduced by 30 per cent. In this series the preoperative abdominal preparation was changed from tincture of green soap, ether and merthiolate, to phisohex and zepharin solution. Hexachlorophane (or G-11) used with either soap or a detergent has given us a new era in preoperative scrubs and skin preparation.

The efficiency of hexachlorophane has been established. A detergent with hexachlorophane is placed upon the skin for a period of ninety seconds. Then 9 brush strokes will accomplish the equivalent of approximately 150 brush strokes with the use of tincture of green soap and water. This has been a remarkable change in preoperative preparation.

There are many trade name soaps and detergents which contain hexachlorophane on the market, i.e., phisohex, septisol, germa-medica, dial soap, etc., and such a product should be used by the patient in her home before admission to the hospital both for vaginal and abdominal preps. We should take advantage of this prophylactic measure and instruct our patients accordingly in the use of these preparations, before admission to the hospital for surgery.

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SURGICAL CORRECTION OF CONGENITAL COARCTATION OF THE AORTA: A REPORT OF FIVE CASES *

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In 1945, independent reports by Crafoord and Gross demonstrated that coarctation of the aorta could be treated surgically by resection and reestablishment of aortic continuity. Before that time, recognition of this anomaly was of academic interest only. Since then, hundreds of cases have been operated upon and the surgical treatment of coarctation of the aorta has received universal acceptance. The burden of this deformity is not usually manifest until early adulthood. However, it has been shown that 70 per cent of patients with this lesion die on or before their fortieth year. The most common cause of death is cerebral hemorrhage due to the markedly elevated cerebral hypertension. Since operative treatment removes the defect and establishes a normal anatomy, the rationale of the operation can be easily understood.

DIAGNOSIS

If the possibility of the presence of a coarctation is kept in mind, the diagnosis is not difficult. In childhood the patient may be completely asymptomatic. There is usually a systolic precordial murmur and hypertension in one or both arms. The finding of absent femoral pulsations or diminished blood pressure in the lower extremities generally confirms the diagnosis. As the patient grows older, one finds evidence of collateral circulation; there may be palpable intercostal or parascapular arterial pulsations or an audible bruit over the intercostal vessels. Notching of the ribs is often seen on a routine

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chest film. In almost all cases, the coarctation is in the descending arch of the aorta just below the take-off of the left subclavian artery. It is usually just at or below the ligamentum arteriosum. In rare instances, coarctation may occur in lower segments of the aorta. The deformity is almost always of an hour-glass type, but in rare instances, may extend for several centimeters. There are usually premature atherosclerotic changes in the region of the obstruction. Aortography is not essential for diagnosis, but can be valuable in demonstrating the site of the obstruction and its extent when an atypical situation is suspected.

SURGICAL TREATMENT

The surgical treatment is simple in concept. Its purpose is the removal of an obstruction and the establishment of a normal channel of blood flow. Because resection and end-to-end anastomosis is the simplest and invites the fewest complications, it is understandably the ideal end to achieve. The latter can be carried out in almost all instances in the age group under eighteen. Because of this and the fact that the young aorta is pliable and elastic, the ideal age for surgery is early in the second decade. At this time, the aorta has reached near adult diameter and is easy to work with. However, if surgery is mandatory in the infant age group, it can be successfully carried out. Occasionally, coarctation of the aorta, either singly or in combination with other congenital defects, can cause severe embarrassment and failure in the infant group. Such a situation is demonstrated in one of the cases (A.W.M.) that are reported herein. In the adult age group, one usually finds an atherosclerotic, rigid aorta. It is often impossible to effect an end-to-end anastomosis and the use of a homograft is necessary. Because of the foregoing, a preserved homograft should be made available in all cases over the age of eighteen.

Complete dissection of the descending thoracic aorta, including its intercostal branches, is a requisite. This dissection is usually begun above the left subclavian artery and carried down through at least the four to five pairs of intercostal vessels below the coarcted segment. This makes it possible to elevate the aorta from its bed and provide adequate mobilization to effect a primary anastomosis. In general, the technique as practiced by Robert Gross has been found to be the most satisfactory by the author.

POSTOPERATIVE RESULTS

The postoperative results are generally highly satisfactory. In some instances, there is an unexplainable persistent elevated pressure in the presence of a known correction of the aortic block. However, in most cases the blood pressure returns to normal range and adequate circulation to the lower extremities becomes evident. In competent hands, the operation, though formidable, can be done with a negligible mortality risk.

The author has operated upon five cases* of congenital coarctation of the aorta in Baton Rouge, Louisiana since October 1953. Although not large, this series indicates that the anomaly is not the rarity it was formerly considered to be. The cases in the series range in age from three months to twenty-four years, and pretty well demonstrate the gamut of clinical findings and complications that occur in this condition. There was no mortality in the operated group, and all cases are presently well with significant and gratifying clinical improvement. Perhaps the most interesting of the five cases is that of an excision of a coarctation and anastomosis in a three month old infant under hypothermia. It demonstrates the observation that this condition is not an uncommon cause of cardiac failure in infants. There has been an increasing number of reports of late of operative repair in infants who would otherwise have died before they reached the optimal age for surgery. The higher mortality

* Two additional cases have been operated upon since this presentation—both males, ages 6 and 28. The latter required a graft to bridge the defect.

risk and the concern for the fate of an early anastomosis should not preclude an operation in this group when it becomes clear that relief of the aortic block is of immediate and vital importance. The other four cases will also be discussed in some detail, since they demonstrate the variety of features that characterize this condition in the different age groups.

CASE REPORTS

Case No. 1.—Baby A.W.M., a white male infant, had been noted to have respiratory difficulty and tachycardia since birth. When he was six weeks of age, the family noted an inspiratory retraction of the lower costal margins, exertional pallor and marked fatigability during feeding.

X-ray studies disclosed the heart to be enlarged, with prominence of the left ventricle and left auricle. The lung fields were engorged.

EKG revealed a sinus tachycardia of 170, and evidence of left ventricular strain. The femoral pulses could not be felt, and the blood pressure in both arms was recorded as 190/110. The radial pulses were bounding.

The liver was slightly enlarged. Routine blood studies and urinalyses were normal.

It was felt that the child probably had a coarctation with a possible associated patent ductus. At age three months, the child was observed for two weeks and digitalized. He improved only minimally on full digitalization and had to be kept in an oxygen tent throughout this time. On November 20, 1955, surgery was undertaken under endotracheal anesthesia and induced hypothermia. The child was lowered into an ice bath, and the rectal temperature reduced to 84 degrees Fahrenheit over a period of 45 minutes. The infant was then placed in right lateral decubitus position, and no further anesthetic mixture was given.

An obvious vascular abnormality was found in the left gutter. A classical coarctation deformity was found about 8 mm. below the take-off of an enlarged left subclavian artery. The intercostal vessels entering the lower aortic segment were not enlarged. Just 2 mm. above the coarctation was a widely patent ductus with a lumen of at least 3 to 4 mm. It was obvious that almost all of the blood flowing through the descending arch was being shunted through the ductus to the pulmonary circuit. The ductus was divided and the coarcted segment removed. A primary anastomosis was made without difficulty, using interrupted everting sutures of 5-0 silk. Following anastomosis, there was a bounding flow through the realigned aorta.

During the operative procedure, which lasted

Coarctation of the Aorta -

PATIENT	BRACHIAL PRESSURE PREOP.	BRACHIAL PRESSURE POSTOP.	OPERATION	RESULT
S.A wf 18yrs. 	190/110	115/80	Resection Prim. Anast. 8-25-54	Good
P.M.T. wm 24yrs. 	190/115	140/90	Resection Prim. Anast. 10-22-54	Good
J.R.L. wm 24 yrs. 	210/110	130/90	Resection Homograft (5cm) 2-6-55	Good
J.F.S. wm 11yrs 	170/100	120/80	Resection Prim Anast. 6-8-55	Good
A.W.M. wm 3mos 	190/120	140/90	Resection Prim. Anast. Hypothermia 11-20-55	Good

Figure 1

two and a half hours, the rectal temperature dropped to 76 degrees Fahrenheit. Immediately following wound closure, the child was rewarmed with a warm water bath and hot water bottles. The child's temperature returned to normal over a period of about six hours. Recovery from then on was uneventful except for an atelectasis of the left lung the morning after surgery, which responded to laryngoscopy and suction. The child's progress since surgery has been most gratifying. He has gained six pounds in weight to date and appears to be normal in every respect. There are easily palpable femoral pulsations, with a recorded femoral pressure of 140/90. The brachial pressures have dropped to a level between 130 and 140 systolic. Though hypothermia is not essential in operating upon these infants, it is the opinion of the author that this particular case was greatly benefited by the decreased oxygen demand during surgery.

Case No. 2.—J.F.S., a white male of 11 years, had been noted to have absent femoral pulsations and mild brachial hypertension since the age of five. He had been observed since then by his father, a physician, and was noted to have progressive increase in his brachial pressure to the level of 178/100 shortly prior to surgery. The boy's only other symptom was weakness of both legs after running. There were no headaches and no evident cardiac enlargement by either x-ray or EKG. On examination, the child presented a rough, coarse systolic murmur at the apex and widely transmitted.

At surgery, the patient was found to have a classical coarctation about 1 centimeter below the take-off of the left subclavian artery. In freeing up and dividing the ligamentum arteriosum, it was surprisingly found to have a lumen of about 2 mm. A primary resection was performed and an end-to-end anastomosis using interrupted everting 5-0 silk was made. The aorta was easily mobilized, and the child withstood the procedure without incident. He left the hospital on the ninth postoperative day, and four months after surgery, has a brachial pressure of 122/80, with easily palpable femoral pulsations and a femoral pressure of 140/90. His ischemic leg pains have disappeared, and he has been noted to have an increase in the girth of his legs.

This case demonstrates the ease and relative safety that can be offered a patient at this ideal age. At this age, the aorta is always pliable, elastic, and of sufficient diameter to provide adequate flow during later years.

Case No. 3.—S.A., a white married female of 18 years, had a known heart murmur since birth. For the previous five years she had complained of headache, leg weakness, and had been noted to have a mild hypertension of 150/90. A definitive diagnosis was not made until 1954, when, following a three month miscarriage, her obstetrician noted that she had absent femoral pulsations. At that time, her brachial pressure at rest was recorded as 170/100. An x-ray of her chest showed slight left ventricular hypertrophy and definite rib notching. Surgery was advised and carried out at the Baton Rouge General Hospital on August 25, 1954. The patient was found to have a characteristic hour-glass deformity about one centimeter below the obliter-



Figure 2

ated ligamentum arteriosum. There was marked enlargement of the intercostal vessels entering the aorta below the coarctation. The coarcted segment was resected, and an end-to-end aortic anastomosis performed using an interrupted everting 5-0 silk technique. The patient was discharged from the hospital on the tenth postoperative day. Her brachial pressures now range between 130 and 138 over 90. She has good femoral pulsations. She became pregnant again one year ago, and three months ago was delivered of a normal full-term pregnancy. She had a completely uneventful course through her pregnancy and her pressure never ran above 170 systolic during the last trimester.

This case has been particularly gratifying, since pregnancy is not well-borne by the uncorrected coarctation, and if not spontaneously aborted often leads to aortic rupture or cerebral hemorrhage.

Case No. 4.—P.M.T., a married white male of 24 years, had a known heart murmur since age ten. He was taken into the service but two months after induction, a diagnosis of coarctation of the aorta was made and surgery advised. He refused surgery and was given a medical discharge. Since then he had had progressive complaints of cold feet, headaches, and moderate dyspnea on exertion. Physical examination revealed a bilateral brachial pressure ranging up to 210/110 after mild exercise. Femoral pulsations were absent. A routine chest x-ray showed characteristic rib notching. There was a soft systolic murmur best defined at the base of the heart. At surgery on October 15, 1954, the patient was found to have a rather long coarcted segment, with an abnormally narrow proximal aortic arch. The entire aorta was freed and an end-to-end anastomosis made without using the available homograft. The first pair of intercostal arteries below the coarctation were aneurysmal in size. These were ligated and divided. The aorta was clamped for a period of forty minutes during the anastomosis. Following surgery, the patient was found to have flexor weakness of his left leg. It was assumed that this was due to interference with the collaterals. The patient made an uneventful recovery but required the use of a walking stick because of his left leg weakness for a period of about three months. He is now able to get about without a limp and his brachial pressures range between 130 and 140 over 95. His femoral pressures are low (90/50) but a faint femoral pulsation can be felt.

Case No. 5.—J.R.L., a married white male of 24 years, had been told that his blood pressure was high since the age of eight and that he had "some sort of heart disease". A heart murmur had also been heard since that time. For the previous four years he had complained of dyspnea on exertion and headache. A diagnosis of coarctation of the aorta was made by his family physician during a routine physical examination for life insurance. At that time his brachial pressure was recorded as 178/110. He had definite pulsations of his intercostal arteries, and a systolic murmur in the second left interspace. X-rays revealed left ventricular enlargement and classical rib notching. His femoral pulsations were absent and no blood pressure was recorded in his femoral artery.

Surgery was advised and carried out on February 7, 1955. He was found to have a rather long coarcted segment in the classical location one centimeter below the take-off of the left subclavian artery. After resecting the coarcted segment, despite adequate mobilization of the distal portion, it was impossible to bring the ends of the aorta together. A preserved homograft, made available prior to surgery, was inserted to bridge the defect. The homograft measured 5 cm. in length and an interrupted everting 5-0 silk technique was used. The patient made a very smooth recovery and was discharged from the hospital on his tenth postoperative day. He is now fourteen months after surgery and his brachial pressures range from 130 to 138 over 90. He has noted a complete disappearance of all his previous symptoms, has full palpable femoral pulsations and a femoral blood pressure of 160/100.

SUMMARY

The surgical correction of congenital coarctation of the aorta is a procedure now widely accepted and well standardized. Resection of the coarcted segment and end-to-end anastomosis is the ideal management; in some cases, particularly in the older age group, a homograft is necessary to bridge the defect. The diagnostic criteria are fairly simple if the possibility of the presence of the anomaly is kept in mind. In most instances, surgery can offer complete correction of the defect. In competent hands, the operation can be performed with a negligible mortality risk.

Five consecutive cases of surgical correction of coarctation of the aorta performed in Baton Rouge during the past two years are presented. There has been no mortality in the operated group, and all cases are presently well with significant clinical improvement. The cases range in age from three months to twenty-four years, and illustrate the particular problems presented in various age groups.

A preserved homograft was used in

one of the five cases, and the advisability of having a prepared graft available in the over eighteen age group is stressed.

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THE CLINICAL RELATIONSHIP OF THE ADRENAL CORTEX TO DIABETES MELLITUS *

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In a discussion such as this, it seems advisable to define diabetes mellitus. An excellent definition is the one by Jackson:[1]

"It is an innate, obscure disorder of carbohydrate metabolism, which manifests itself in curious, diverse ways — in the hypertrophied islets of overweight stillborn babies; in microaneurysms in the retina; in cardiac infarction in the female; and in excessive tallness in the child and obesity in the mother—apart from the clinically obvious glycosuria, ketosis, and hyperglycemia."

Jackson believed that diabetes may be hereditary, congenital, or acquired, and may be present for many years before becoming clinically obvious, in fact, from birth in many instances. If diabetes is considered to be this type of disease, many factors will enter into production of symptoms, as well as treatment of the patient. One of the most interesting factors which has an influence on carbohydrate metabolism and upon diabetes mellitus is adrenal cortical function. Many methods have been used in attempting to assess the relationship between the adrenals and diabetes. Studies which have been performed include adrenalectomy and hypophysectomy in normal and pancreatectomized animals and administration of anterior pituitary extract-growth hormone, ACTH and cortisone.

EXPERIMENTAL OBSERVATIONS— ADRENALECTOMY

Adrenalectomy was first shown by Long and Lukens [2] to alleviate the diabetes that developed in laboratory animals following pancreatectomy. They [3, 4] later confirmed and enlarged upon this observation and drew the following conclusions. Adrenalectomy is followed by a decrease in concentration of carbohydrate in the blood and liver, but the extent of decrease in muscle glycogen is questionable. The respiratory quotient usually remains normal. Following fasting, hypoglycemia and extreme depletion of liver glycogen develops. Their animals were hypersensitive to small doses of insulin, and in addition, there was a decrease in the urinary excretion of glucose, nitrogen, and ketones. Following adrenalectomy, the result of the intravenous glucose tolerance test remained normal or showed increased tolerance. The peripheral oxidation of carbohydrate was unchanged, as measured by radioglucose technics.[5] Since the intensity of the diabetes could be restored by adding adrenal cortical hormones, which also resulted in replacement of liver glycogen stores, it was believed that adrenalectomy probably resulted in defective conversion of protein to carbohydrate or gluconeogenesis. Ingle [6] thought that in many of the early experiments, the alterations in carbohydrate, fat and protein metabolism could possibly have been due to inadequate feeding of the animals, shock, or infection. He showed that in adequately supported animals, forced fed and maintained on a 1 per cent solution of sodium chloride, adrenalectomy alone may result in no change in the blood, tissue or liver carbohydrate, nitrogen balance or fat metabolism. If these animals were forced fed on a medium carbohydrate diet, no difference occurred in the nitrogen excretion of the adrenalectomized as compared with the sham-operated control. Furthermore, in a partially pancreatectomized rat given a constant food intake, mild glycosuria could be abolished by adrenalectomy without decreasing the amount of urinary nitrogen excretion.[7] These and other experiments showed that it is possible for an adrenalectomized rat to metabolize large amounts of fed protein when kept in

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good condition with sodium chloride intake.

Pincus and Elmadjian [8] summarized the current concept regarding these aspects of adrenalectomy by stating that decreased hepatic gluconeogenesis had been definitely shown to occur in adrenalectomy, although there is still disagreement as to the influence on glucose utilization by peripheral tissues.

HYPOPHYSECTOMY

With regard to the influence of the pituitary upon carbohydrate metabolism, Houssay [9] demonstrated very clearly that hypophysectomy results in pronounced amelioration of pancreatic diabetes. Prior to these experiments, Olmsted and Logan [10] had shown that insulin convulsions could be produced in decerebrated cats whose pituitaries had been removed, but not in animals with intact pituitaries given the same dose of insulin. Houssay further showed that removal of the pancreas in hypophysectomized dogs or toads resulted in less urinary excretion of glucose, nitrogen and ketones than that seen after pancreatectomy alone. Therefore, if the pituitary were in place in these pancreatectomized animals, the conversion of protein to carbohydrate increased. Lukens [4] pointed out that in the pancreatectomized cat, abscesses rapidly developed in the incision, whereas, if the pituitary, as well as the pancreas, was removed, such abscesses healed completely. Apparently, although there is an increase in blood sugar and insulin is absent in both groups of animals, removal of the pituitary results in a decreased breakdown of protein and fat. Lukens [4] further showed that pancreatectomized cats will lose 300 to 400 Gm. in four days of survival; whereas if the pituitary is removed as well as the pancreas, the same amount of weight will be lost over a period of two months. Therefore, the lack of insulin causes loss of weight, but this is definitely accelerated if the adrenal and pituitary are functioning and this is related to the adrenal catabolic influence.

ANTERIOR PITUITARY AND GROWTH HORMONE ADMINISTRATION

With respect to administration of anterior pituitary extracts, Houssay [9] showed, in 1932, that this material injected into normal animals could result in temporary hyperglycemia and glycosuria. Young [11] produced permanent diabetes by giving normal dogs anterior pituitary extract. In addition, this substance worsened the diabetes of Houssay's animals in which both pituitary and pancreas had been removed. In cats and dogs, partial pancreatectomy, administration of pituitary extract, growth hormone, or massive doses of glucose produced similar changes in the beta cells of the pancreas resulting in atrophy.[4] If the hyperglycemia of these animals were prevented by administration of phlorhizin or insulin concomitantly, the permanent microscopic changes as well as permanent diabetes did not develop.[12, 13] Therefore, the microscopic changes were secondary to the hyperglycemia and not directly the result of administration of the growth hormone or pituitary extract. Young [14] has since related the diabetogenic activity of anterior pituitary extract to the more purified action of growth hormone.

Administration of growth hormone promotes many changes.[4] Among these are positive nitrogen balance, growth, depression of glucose uptake by isolated diaphragm muscle, and prevention of further loss of muscle glycogen in a fasted hypophysectomized animal. It makes alloxan diabetes worse, and can produce permanent diabetes in the dog or cat, although it is ineffective in intact rats. Engel and associates [15] showed that growth hormone became diabetogenic in the intact force-fed rat if ACTH were also given. The work of deBodo and Sinkoff [16, 17] has further elucidated growth hormone function. They observed that if the pituitary were removed, insulin sensitivity was greater than if only the adrenal cortices were removed; this shows that there is a pituitary factor, separate from ACTH, that is concerned with insulin sensitivity. Administration of thyroxin or prolactin resulted in only partial abolition of the insulin hypersensitivity of

the hypophysectomized dog; whereas administration of growth hormone diminished and, with continued treatment, completely abolished this hypersensitivity. Therefore, the anti-insulin action of growth hormone could occur in the adrenalectomized, hypophysectomized dog and therefore could exert its diabetogenic action without going through the adrenal. There is still some question as to whether or not growth hormone actually interferes with peripheral utilization of carbohydrate.

EFFECTS OF ACTH AND CORTISONE

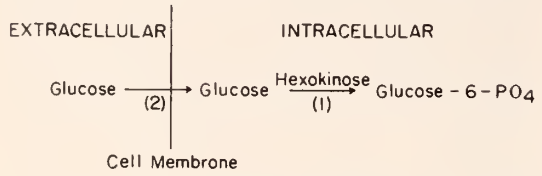
Administration of ACTH and cortisone in experimental animals has led to further elucidation of the role of the adrenal in carbohydrate metabolism. Long and Lukens [2] alleviated experimental pancreatic diabetes by removing the adrenal cortex. Administration of the adrenal cortical extract conversely resulted in intensification of the diabetes. Therefore, a definite relationship between diabetogenic and adrenal activity was demonstrated. Venning, Kazmin and Bell [18] devised an assay for adrenal cortical hormones based on the fact that livers deplete of glycogen developed in fasted mice given only salt and water. When these animals were given cortisone, an increased content of liver glycogen would develop which was directly proportional to the amount of cortisone administered. Further studies revealed that administration of adrenocortical steroids could produce "steroid" diabetes in the normal force-fed rat.[3, 6] This diabetes was typically mild although the animals were hyposensitive to insulin. Urinary excretion of nonprotein nitrogen increased in association with increased liver glycogen, which was good evidence in favor of gluconeogenesis. When food was withheld, glycosuria disappeared although the negative nitrogen balance continued. The diabetes was characteristic in that the glycosuria that developed as a result of steroid treatment would gradually decrease over a period of time and could be reestablished if a further increased dose of steroid were given. The glycosuria disappeared when the steroid injections were discontinued. The increase in glycosuria following treatment was greater than could be accounted for by increase in urinary nitrogen excretion and therefore Ingle [6] thought that the adrenal cortical hormones either affected conversion of fat to carbohydrate or inhibited carbohydrate utilization. Segaloff and Many [19] showed that ACTH in extremely large doses given to intact rats greatly increased excretion of glucose as well as ketosis but did not affect urinary nitrogen. This is further evidence that adrenal cortical function increases conversion of fat to carbohydrate.

The newer adrenal cortical steroids vary in their activity upon carbohydrate metabolism as compared with their salt and water effects.[20] Aldosterone and the synthetic fluorinated compounds have much greater salt retaining properties than carbohydrate effects whereas the Delta [1] series, such as prednisone, shows greater carbohydrate effects than sodium retaining activity. The 2-methyl analogues seem to be more potent than the nonmethylated steroids with respect to both the glycogen depositing action and the sodium retaining property.[21]

In addition to the metabolic changes resulting from administration of ACTH and cortisone in experimental animals, one of the most interesting developments in the last few years has been the experimental production of capillary disease of the retina and the renal glomerulus. In 1952, Becker [22] reported the appearance of retinal micro-aneurysms as well as renal capillary changes, suggestive of the Kimmelstiel-Wilson type, in alloxan diabetic rabbits treated with ACTH. Alloxan alone did not produce these lesions. Bloodworth and Hamwi [23] confirmed these results by demonstrating both nodular and diffuse glomerular lesions in normal as well as alloxanized rabbits treated with cortisone. The degenerative vascular lesions seen in diabetes have been thoroughly reviewed recently by Ricketts [24] with

a discussion of the possible relationships involved.

The manner in which the adrenal hormones influence insulin activity is not known. Levine and Goldstein [25] offered a



(After Levine and Goldstein)

Figure 1.—Possible sites of hormone action in glucose utilization.[25]

hypothesis which they believed explains the major metabolic consequences of insulin lack or excess. As shown in Figure 1, there are two possibilities, either of which would explain most of the experimental evidence pointing to the insulin effect. One is inhibition of the hexokinase reaction, and the other, the possibility of activating a mechanism whereby glucose entered the cell. Most of the prior experiments would show the same effect, whether acting upon the hexokinase activity or the cell permeability; in one instance it would be a pulling effect and in the other a pushing effect on glucose. Therefore, a nonutilizable carbohydrate was used as a means of distinguishing these functions. Cortisone was shown to have produced almost complete insulin resistance with regard to glucose, but not galactose, which is a nonutilizable carbohydrate. They believed that activation of a mechanism of entry into the cell is the primary effect of insulin, and that once in the cell, the pathway of metabolic function continues whether insulin is present or not. They concluded that pituitary and adrenal cortical secretions have some inhibitory influence on glucose uptake by muscle and they then supposed that the pituitary and possibly adrenal cortical hormones inhibit the hexokinase activity but do not operate upon step 2, which would be the permeability of the cell to the substance.

It should be mentioned that the adrenal may be playing a permissive role in diabetes. In a recent editorial, Engel,[26] who pointed out the evidence in favor of this, mentioned that subthreshold types of stress alone may produce no response or a delayed response; whereas a subthreshold stress, plus small amounts of adrenal cortical extract, will produce a protein catabolic reaction. Therefore, the adrenal cortical hormone is necessary for the organism to respond, but is not primarily responsible for this type of stress reaction. Furthermore, hypersecretion of adrenal steroids does not seem to be necessary to initiate the metabolic response, but a high level of secretion may be necessary to sustain it. This would explain the high levels of adrenal cortical hormones secreted during periods of stress.

CLINICAL OBSERVATIONS

The next question that comes to mind is: what role do the pituitary and adrenal play in human diabetes, either in causing it or possibily in aggravating it during periods of infection, stress and emotional upset? Secondly, is experimental diabetes, such as the type just discussed, truly the diabetes seen clinically or is this just a defect in carbohydrate metabolism without the other associated manifestations of diabetes? Since most cases of clinical diabetes are due to an actual insulin deficiency, it is well to consider whether the adrenal plays a necessary role in maintaining this metabolic disturbance, whether an adrenal disturbance is actually present and if so, just how often subclinical adrenal disturbances will lead to the carbohydrate defect seen in diabetes, without the stigma usually seen in clinically evident adrenal disease. Although there is no definite answer to these questions at present, it is of interest to consider the experimental work on patients with respect to the adrenal's role in carbohydrate metabolism.

ACTH AND CORTISONE ADMINISTRATION

The effect of ACTH and cortisone in the human has been thoroughly investigated within the last ten years and considerable information has accumulated. Large doses of ACTH given to normal people will induce a state of diabetes, in

other words, hyperglycemia as well as glycosuria, which is relatively resistant to insulin.[27] In some normal people, glycosuria develops without hyperglycemia; this indicates decreased renal reabsorption of glucose. Conn and associates [27] showed that there is a decrease in the level of glutathione in the blood associated with induction of steroid diabetes in man. Since they noted an increase in uric acid excretion as well, which has been thought to be related to alloxan-like compounds, they suggested that possibly the decrease in glutathione is in some way a decrease in the protective mechanism of the pancreas against any alloxan-like effect. The average dose of cortisone that most patients receive is usually extremely small and, apparently for that reason, only slight or no changes at all in carbohydrate metabolism occur. Rarely is more than a trace of sugar found in the urine even after meals. The glucose tolerance test is more sensitive than the fasting blood sugar and was found to be abnormal in 4 of 12 patients treated with cortisone. However, 2 of these 4 had a family history of diabetes. There have been some instances in which after prolonged treatment with cortisone there was still no evidence of impairment of glucose tolerance. Sprague and coworkers [28] believed that this might indicate that in some persons cortisone had made manifest a latent diabetes. Burns, Engel and others [29] showed that a single dose of cortisone (200 to 500 mg.) given to a normal person would result in significant elevation of the blood sugar four hours later as well as impairment in the glucose tolerance. The glucose insulin or insulin tolerance alone was not impaired by the same treatment and indicated no evidence of decreased sensitivity to insulin. Intravenous administration of compound F produced no hyperglycemic effects in a four hour test, but did show a decrease in the standard glucose tolerance.[30] As a result of serum phosphorus changes, indicating normal glucose utilization, it appeared that insulin sensitivity remained normal, that there probably was an increase in protein conversion to carbohydrate, and possibly an increase in glucose utilization. There seems little doubt that cortisone increases conversion of protein to carbohydrate as evidenced by the increased urinary nitrogen and increased glycogen stores seen in patients treated with cortisone. However, studies performed on diabetic persons while on a carbohydrate free diet showed that cortisone increased the glycosuria in excess of that explainable by gluconeogenesis from protein alone; therefore, fat must be converted to carbohydrate in order to explain the full diabetogenic effect of adrenal steroids.[31]

Becker [22] reported appearance of retinal capillary aneurysms similar to those seen in persons with diabetes in 2 patients given ACTH intravenously for sarcoidosis. These changes disappeared when ACTH was discontinued. This last observation of Becker has brought further attention to the possibility of the adrenal's role in producing capillary disease in diabetes mellitus.

Administration of ACTH to diabetic persons results in an increased degree of ketosis and hyperglycemia, decreased utilization of carbohydrate and increased excretion of carbohydrate in the urine.[31, 32] The ratio of dextrose to nitrogen in the urine suggests that fat as well as protein is being converted to carbohydrate. Diabetic patients require more insulin during treatment than they ordinarily do. A more interesting observation by Kinsell and coworkers [31] is that the insulin resistance during ACTH and cortisone treatment could be prevented by administration of potassium salts. Conversely, insulin resistance occurred only in patients who exhibited some interference with sodium or potassium stores in the body. It is interesting that in no diabetic patient treated with either ACTH or cortisone did the increased severity of the diabetes continue after discontinuance of use of the hormone. In two instances, less insulin was required than before treat-

ment and it is possible in these that ACTH or cortisone could have benefited insulin resistance secondary to some allergy. Conn and Fajans [33] stated that development of decreased carbohydrate tolerance during ACTH treatment depends upon dosage and duration of administration of ACTH, whether the index is the fasting blood sugar or the more sensitive glucose tolerance test, and the patient himself. In addition, there might be interference with the ability of the pancreas to produce the necessary increase in insulin supply.

Fajans and Conn [34] did glucose tolerance tests on 252 healthy relatives of diabetic patients and on 50 normal control subjects, both before and after oral administration of 100 or 125 mg. of cortisone. Twenty-four percent of the nondiabetic relatives showed pronounced reduction in carbohydrate tolerance during the cortisone glucose tolerance test as compared with only one of the 37 controls. This type of test would be of value in detecting the prediabetic patient although at present there is certainly no means of preventing progression of the condition to true clinical diabetes, except possibly by maintaining normal weight.

McQuarrie [35] called attention to use of ACTH in idiopathic spontaneous hypoglycemia of infants and children. It was thought at first that the deficiency of alpha cell secretion of glucagon would possibly account for the hypoglycemia in these children, but other factors are apparently important. These children have a hypoglycemia suggestive of excessive insulin production in the fasting as well as in the postprandial state. As McQuarrie pointed out, these children do not have pancreatic islet tumors but definite cerebral damage will develop in them if the condition continues over a period of years. Since the condition subsides in many as they grow older, everything should be done to prevent damage to the brain from the hypoglycemia. For that reason ACTH has been used successfully and in several instances it has been discontinued after several months. Conn and Seltzer [36] in a discussion of organic hyperinsulinism or hypoglycemia, mentioned that ACTH can be used in the preoperative preparation of these patients. This elevates the blood sugar and also prevents the peculiar type of hyperthermia which has been noted following surgical removal of pancreatic adenomas. If the patient refuses to submit to operation, or if there is too great a risk for operation, then hydrocortisone in large doses can be used and will maintain the fasting blood sugar levels.

CUSHING'S SYNDROME

One would expect in Cushing's syndrome due to increased adrenal cortical secretion a definite interference in carbohydrate metabolism. Knowlton [37] found this to be true in 94 per cent of the patients having a carbohydrate tolerance test. However, of the 38 patients, only 24 per cent showed overt diabetes. The average fasting blood sugar was normal. He believed that severe carbohydrate disturbances in Cushing's syndrome are rare as evidenced by only one instance of acidosis in a review of 189 cases in the literature. Cope and Raker [38] reported similar observations. Patients having an insulin tolerance test revealed insensitivity to insulin. Sprague and coworker's [28] patients with Cushing's syndrome showed, in addition to the other findings, a negative nitrogen balance even when glycosuria was minimal or absent, and during fasting the diabetes became mild.

Balfour and Sprague [39] reported a case of Cushing's syndrome in which, despite 145 units of insulin a day, excessive glycosuria continued, but there was no evidence of ketosis. Following removal of the adrenocortical tumor, there was no further evidence of diabetes over a period of eight years. Many similar instances have been reported. Thus, this type of steroid diabetes is usually reversible if the lesion can be removed. It is similar to that seen in patients given excessive amounts of ACTH or cortisone in that the fasting blood sugar level is frequently

normal while the glucose tolerance test shows abnormalities, insulin resistance is present, a negative nitrogen balance will occur despite absence of glycosuria, and lastly, the glycosuria tends to decrease in the presence of fasting.

ACROMEGALY

The carbohydrate studies done in patients with acromegaly have shown a similar type of diabetes in that it is usually mild, insensitive to insulin and, if the pituitary lesion responsible for the acromegaly becomes inactive either spontaneously or with treatment, the diabetes becomes milder or even disappears.[39] Balfour and Sprague [39] reported a case of an acromegalic patient with a blood sugar of 384 mg. per cent, requiring 62 units of insulin daily who, following roentgentherapy to the pituitary tumor eventually needed no further insulin. Davidoff and Cushing [40] in 1927 reported only 12 per cent of their 100 acromegalic patients had diabetes. In another series [41] only 26 per cent had diabetes, which was mild, disclosed only by glucose tolerance tests and occurred more frequently in relatives of diabetics. Most cases are controlled by diet and in some instances small doses of insulin, although occasionally the severity of the diabetes changes rapidly.[42] Diabetic coma, gangrene, and other vascular complications rarely occur. Therefore, the mild diabetes seen in acromegaly is rarely a clinical problem.

PITUITARY INSUFFICIENCY

The development of pituitary failure or Simmond's disease in diabetes has received considerable attention in the literature.[43, 44] Martin and Pond [43] found 11 cases in which the diabetes mellitus was alleviated by the onset of pituitary insufficiency. This has been referred to as the Houssay phenomenon in man. Most of the patients had moderately severe diabetes, requiring insulin therapy, who, following development of pituitary failure, began to notice frequent insulin reactions and resultant decrease in insulin requirement. Several discontinued insulin altogether. Harvey and de Klerk [44] mentioned two diabetic persons in whom pituitary failure developed so that insulin therapy was no longer required, but they continued to show a diabetic glucose tolerance curve. The most interesting case of this kind was reported by Poulson.[45] This was a woman, aged 30 years, who had had diabetes for twenty years and had severe diabetic retinopathy. Following postpartal pituitary failure, the insulin sensitivity increased and the patient no longer had a tendency to ketosis. Approximately four years later the retinopathy had decreased considerably and six years after development of pituitary failure, diabetic retinopathy was no longer present. Since the work of Becker [22] showed the influence of ACTH and cortisone upon the development of diabetic retinopathy, the reaction in this patient suggests a possible therapeutic approach —hypophysectomy.

Luft, Olivecrom and Sjogrn [46] have probably had the greatest experience in the use of hypophysectomy in diabetes. They reported 7 cases, all of which had chronic juvenile diabetes, with progressive malignant vascular complications. Only patients who were expected to die or become blind were selected for treatment. The insulin requirement preoperatively varied from 24 to 60 units daily and postoperatively it was 0 to 8 units daily. The effect on the vascular complications was difficult to assess at the time of their report, since all patients had far advanced disease at the time of operation. In one there was no further progression for one year. The hypertensive patients became normotensive and, in 2 patients, chronic albuminuria disappeared. Kinsell and coworker's [47] experience with hypophysectomy is similar. They pointed out that the insulin hypersensitivity that developed could be balanced by the judicious use of cortisone. This procedure is still in the experimental stage, and further work will have to be done before its therapeutic role can be properly evaluated.

ADRENAL DEFICIENCY

It was noted by Thorn and associates,[48]

in 1940, that patients in whom Addison's disease developed showed the similar changes expected from animal studies. Depletion of liver glycogen, decreased urinary nitrogen excretion, increased sensitivity to insulin and development of hypoglycemia during episodes of fasting all occurred. These changes can be corrected by administration of cortisone.[28] In the adrenalectomized patient hypoglycemic reactions do not occur and the glucose tolerance remains normal as long as the patient receives adequate hormonal maintenance.[49] Two of the patients adrenalectomized by Dao and Bergenstal [49] had diabetes. They required the same amount of insulin postoperatively as they did preoperatively if maintenance cortisone therapy was continued. There have been many instances of Addison's disease developing in preexisting diabetics. As would be expected, the insulin sensitivity greatly increased. Many patients who had been taking 30 to 40 units of insulin daily began to have increased insulin reactions to the point where even 3 or 4 units of insulin could produce a hypoglycemia.[39] This was corrected with either adrenal cortical extract or cortisone. Conn and Fajans [33] pointed out that patients with Addison's disease manifest a definite inability to fast without hypoglycemia, a greatly increased insulin sensitivity, and symptoms of hypoglycemia at higher levels of blood sugar than when corticoids are present. Cortisone in physiologic amounts reverses these effects. Cortisone replacement therapy in patients with Addison's disease and diabetes intensifies the diabetic state but the patient has fewer symptoms of adrenal cortical insufficiency and the diabetes is easier to control although more insulin is required.[33] Green and associates [50] first induced adrenal cortical insufficiency as a therapeutic measure in diabetes when they performed bilateral adrenalectomy in a patient with malignant hypertension and diabetes. The insulin requirement fell to one-fourth of the preoperative dosage and hypoglycemia occurred if an overdose of even 3 to 5 units of insulin was given. Adrenalectomy was also performed by Wortham and Headstream [51] in 7 patients with advanced vascular disease. Two patients showed mild reversal of retinal changes, return to normal blood pressure, and decrease in protein excretion. In 3 patients the preoperative vascular manifestations progressed no further. In general, the favorable results have been in inverse proportion to the severity of the vascular disease preoperatively. Adrenalectomy should be considered in the same experimental stage as hypophysectomy and should be limited to patients with vascular disease and rapidly progressive renal deterioration. The value of this procedure has yet to be proved.

ADRENAL FUNCTION IN DIABETICS

Studies of adrenal cortical function in diabetic patients in general reveal no increased adrenal function as evidenced by normal 17-ketosteroid and glycogenic corticoid values.[52] Patients during diabetic acidosis were found to have elevated urinary excretion of corticosteroids which was somewhat related to the severity of the diabetic acidosis.[53] However, in a patient followed after intentional withdrawal of insulin therapy the urinary corticoids did not become demonstrably increased until mild acidosis was clinically apparent. Therefore, this adrenal activity was a late phenomenon, secondary to and not responsible for the diabetic acidosis. On the basis of eosinophile responses it has been suggested that adrenal cortical unresponsiveness exists in diabetic persons, possibly secondary to the chronic stress of the diabetic condition.[54] Freeman and associates [55] found the free-reducing and hydrocortisone-like steroids in human plasma to be within normal limits in 8 diabetic persons. Walloch and coworkers [56] reported elevation of 17-hydroxy-corticosteroid levels in plasma in a patient with diabetic acidosis and return of these levels to normal with response to therapy. However, in patients who died, the blood level remained elevated until death. This suggests that increased adrenal

cortical activity is present in diabetic acidosis, but is the result rather than the cause. In addition, they had one patient with relative adrenal insufficiency in whom acidosis developed without an increased blood corticoid level. This further suggests that adrenal cortical increased activity is secondary. Izzo and Eilers [57] measured the total reducing corticosteroids and 17-ketosteroid excretion in patients with diabetes before and after cortisone administration. Significant increased excretion occurred in diabetic persons but not in normal controls; this suggests the possibility of altered steroid metabolism in diabetes mellitus.

TABLE 1
CLINICAL APPLICATION OF ADRENAL INFLUENCE ON CARBOHYDRATE METABOLISM

A. Diagnostic	
	Possibility of Adrenal Diabetes
	Possibility of Pituitary or Adrenal Failure
	Pre-diabetic
	Diabetes Mellitus or Cushing's Syndrome
B. Therapeutic	
	Side Effects of Cortisone Treatment
	Spontaneous Hypoglycemia
	Adrenalectomy or Hypophysectomy in Diabetes

CLINICAL IMPLICATIONS

Table 1 summarizes some of the possible diagnostic and therapeutic applications of the adrenal-carbohydrate relationship. Steroid diabetes should be considered for diagnostic purposes in all diabetic patients, particularly if the insulin requirement is high. A diabetic patient whose insulin requirement suddenly decreases and in whom hypoglycemic reactions begin to occur for no apparent reason should be considered to have possible pituitary or adrenal failure. The prediabetic patient is of interest at the present time and can be recognized if the cortisone-glucose tolerance test is employed, although no therapeutic measures are yet available for this peculiar syndrome. The differential diagnosis between diabetes mellitus and Cushing's syndrome is frequently a problem, particularly in an obese, hypertensive, diabetic, slightly hirsute individual. Many patients with Cushing's syndrome will have the other associated finding of osteoporosis, vertebral fractures, purple striae, amenorrhea and muscular atrophy. However, in atypical instances, the urinary excretion of corticosteroids will be the deciding factor. Since there is no good experimental evidence that indicates increased adrenal function in uncomplicated diabetes mellitus, increased corticosteroid excretion would favor the diagnosis of Cushing's syndrome.

With regard to the therapeutic implications, the hyperglycemic effects of cortisone therapy need only be watched for and controlled. The likelihood of retinal and renal vascular complications is not great but should be kept in mind when treating diabetic patients with cortisone. The value of ACTH or cortisone therapy in spontaneous hypoglycemia needs no further comment. Lastly, removal of the adrenals or pituitary in diabetics is still experimental therapy, yet to be proved to have definite value although it may offer some hope in the future handling of the vascular complications of diabetes mellitus.

SUMMARY

The relationship between diabetes mellitus and adrenocortical function has been presented. Experimental observations in normal and pancreatectomized animals as well as clinical observations in patients are reviewed, and the clinical implications of these findings are discussed.

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DISCUSSION

Dr. William M. Luikart (Baton Rouge): Effects of adrenocortical function which are related to the problem of diabetes, and upon which there seems to be general agreement seem to me as follows:

Increased hepatic gluconeogenesis from protein.

Increased gluconeogenesis from fat.

Increased glycogenesis, of apparently greater degree in the liver, as compared to insulin's greater muscle glycogenesis.

Decreased insulin sensitivity either by altered cation concentration, or through stimulation of alpha cells glucagon production.

Tendency to foster capillary damage in diabetics.

There would seem to be no question as to the importance of the relation of adrenocortical function to the clinical syndrome of diabetes, if only from the fact that either hypophysectomy or adrenalectomy in certain respects reverse the biochemical state of the diabetic. The crux of the matter centers about the question of whether or not adrenal cortical function holds a merely permissive role in diabetes: The fact that carbohydrate metabolism in hypercorticism does appear to differ materially from the diabetic state lends support to the permissive role of the adrenal cortex. Collateral evidence is the suggestive reports indicating that the cortex plays a permissive role in the stress reaction, which is undoubtedly a factor in clinical diabetes.

Considering the very important effects of diabetes on the vasculature in relation to microaneurysmal changes in capillaries of retina or kidney, and especially to the well known acceleration of atherosclerotic changes, the problem of adrenocortical effects on lipid metabolism in diabetes deserves more study, such as is noted in reports by Harris and by Hirsch in separate papers on the association of hyperlipemia with the hyperglycemia of diabetes. If insulin does promote lipogenesis, and adrenocortical function indeed promotes gluconeogenesis from fat, an important relationship is strongly suggested. As has been pointed out in the present paper, adrenalectomy in certain cases has brought about amelioration of vascular degeneration in diabetics.

It seems clear that the anterior pituitary exerts some of its effects on diabetes through the adrenal cortex, but also has some direct effects. Of particular interest is the apparent demonstration of antagonistic effects between pituitary growth hormone and adrenocortical hormone, especially since insulin itself has been shown to act as a growth hormone under some conditions, and, in addition, insulin appears to be required for the growth-promoting activity of pituitary growth hormone.

The specific points of action of insulin and adrenal cortical hormone are of prime interest. While the work and theories of the Coris and of Stadie can scarcely be dismissed, the theory of insulin action presented by Levine is most interesting. The demonstration that the insulin resistance induced by cortisone could be prevented if potassium and sodium concentrations were maintained at normal levels, would suggest the possibility that the effect of insulin on membrane permeability to glucose is somehow related to cation concentration, which in turn is known to be affected by adrenal cortical hormone; this might represent a point at which insulin and adrenocortical hormone are specifically antagonistic.

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RECONSTRUCTION PROCEDURES OF THE HIP *

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ALEXANDRIA

The term reconstruction can be interpreted to mean to "re-create". This recreation can be thought of in two different ways: (1) to restore the anatomy of a diseased hip joint, or (2) to restore the function of such a joint. The purpose of this paper is to summarize in a rather general manner the procedures which have been designed over the past forty to fifty years and to present the basic principles of some of these procedures with their results. No attempt will be made to evaluate these procedures critically. Also, the use of femoral head prostheses will not be discussed.

The types of cases with which we are dealing have been "problem cases". They include for the most part congenital dislocations of the hip, osteoarthritis of the hip with pain and varying degrees of ankylosis, nonunion following fracture of the neck of the femur with and without aseptic necrosis of the femoral head, and associated cases. A reconstruction operation should have as its object; (1) the restoration of stability and (2) the preservation of motion. To quote Royal Whitman, "In the treatment of fractures, the first indication is to save life, the second to get

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union, and the third to correct or diminish displacements".

It is difficult to separate the true (anatomically) reconstructive procedures from the functionally reconstructive procedures (osteotomies), except on an historical basis. Even at the present time a decision for a procedure may be changed during an operative procedure due to findings unexpected prior to surgery. For this reason, it behooves us to be conversant with the variety of procedures which have been recorded.

In 1917, Brackett [1] reported a procedure in nonunions of the femoral neck which consisted of removal of the top of the greater trochanter and the placing of the femoral head fragment on the supermedial aspect of the trochanter. Muscles were then attached to the lateral side of the femur and plaster immobilization was used. He reported an eight-year follow-up on a case in 1925 [2] with apparently satisfactory result.

Albee's original description was presented in 1919, but in 1929,[3] he presented a summary of 110 cases, in which they were graded as results of 87 excellent, 14 fair, 9 poor, and 2 deaths. His procedure consisted of removal of the femoral head, placing of the neck into the acetabulum, splitting the trochanter in a sagittal plane, and placing autogenous iliac bone between the cut surfaces of the trochanteric fragments to keep the mechanical advantage of the abductor muscles. Complete immobilization in plaster was necessary for eight to ten weeks following surgery.

Royal Whitman,[4] in 1921, presented what he classified as a true reconstructive operation. In it, he removed the femoral head, placed the neck and shaft into the acetabulum, and transplanted the trochanter with its attached muscles inferiorly to the lateral side of the femoral shaft. The patient was then immobilized in plaster for eight to ten weeks. He felt that his procedure was more mechanically sound than Albee's, as it did not shorten the excursion of the abductor muscles.

The relative merits of these two procedures suffered a controversy for many years. Speed, in 1926,[5] felt that the Brackett procedure had the complication of instability in the hip and felt the Whitman procedure had given the best results. Magnuson, in 1932,[6] preferred the Brackett procedure to the Whitman, depending on the condition of the head fragment. At the same time he advocated a procedure which combined the two principles—with retention of the head fragment, shaping of the neck remnant and placing it into the head, and transplantation of the trochanter.

Colonna, in 1935,[7] designed a procedure primarily for those cases in which nonunion is accompanied by complete absorption of the femoral neck. In his procedure all of the muscles are removed from the trochanter, *but* the trochanter is left covered with a smooth fibromuscular layer. The head fragment is removed and trochanter is placed in the acetabulum. The abductor muscles are reattached on the lateral side of the femur and the vastus lateralis is reefed over the muscle attachment. Here again, plaster immobilization for four weeks followed by overhead suspension for three to four weeks is necessary.

Luck, in 1938,[8] varied the reconstruction ideas a bit with his procedure designed to eliminate shearing forces and to prepare a vascular bed in the intertrochanteric region for the fractured surface of the femoral head. If the head was not dead and not arthritic, it was used; otherwise, a Colonna was done, or a Whitman. The procedure consisted of the resection of a wedge from the medial aspect of the shaft and neck at the level of the lesser trochanter, placement of the head atop the raw shaft of the femur, and transplantation of the trochanter inferiorly along the lateral side of the femur. This was followed by plaster immobilization in 20 degrees of abduction for about eight weeks.

Heretofore, these procedures were designed primarily for nonunions of the femoral neck. About this time in medical history the use of osteotomies in this area began to gain popularity. Blount [9] gives credit to Kirmisson, in 1894, for report

of first osteotomies in the subtrochanteric area for gait correction in 1918, and Lorenz in 1919, as initial advocates of corrective osteotomy.

A great deal of thanks and credit is due McMurray for his widespread use of the osteotomy. In his original article in 1936,[10] he advocated a high oblique osteotomy which eliminated the shearing forces at the site of femoral neck injury. His paper, in 1938,[11] was the first to advocate this procedure in fresh transcervical fractures. His essentials for good rusults were listed as (1) correct position for transferred shaft of the femur, (2) prolonged adequate postoperative immobilization, and (3) fixation of the limb in very slight abduction or in neutral to prevent knock-knee deformity. McMurray was also the first to advocate traction preoperatively in cases with upward displacement of the trochanter.

From that time to the present the progress has been made primarily in the direction of osteotomies for functional reconstruction of the hip. Gaenslen, in 1935,[12] preferred the transverse osteotomy of Schanz in preference to the oblique osteotomy of McMurray, as the former does not depend on ischial abutment. He felt that either the high or low osteotomy could be used for old ununited hip fractures, but the low only in congenital dislocations of the hip.

Blount, in 1943,[13] marked another milestone of progress when he made an effort to eliminate postoperative cast immobilization. He designed a double angle blade plate to be used with what is basically a high or low Schanz osteotomy with internal fixation.

Dickson, in 1947,[14] designed what is referred to as his geometric osteotomy. He did not agree with the extensive dissection necessary for the Brackett procedure, as he felt it interfered with circulation. He devised an osteotomy in the subtrochanteric region hexagonal in shape with fixation with a single angle blade plate. By rotation of the head and neck fragments 60 degrees he desired to convert the neck fracture to a transverse one. He now advocates the adduction of the proximal fragment 45 degrees instead of 60 degrees.

Blount[9] summarized, in 1952, an extremely useful and complete basis for the use of osteotomy both in the osteoarthritic hip and in the femoral neck fractures, old and new. Basically, he feels that all osteotomies can be divided into either angulation or displacement osteotomies.

Angulation osteotomy is used when better mechanical function of the hip joint is desired. In fractures of the neck of the femur it is used when the head is alive and when union across the fracture site is expected. It is also used in congenital dislocations to correct adduction and faulty rotation when no healing of a fracture site is necessary. In angulation osteotomy there must be two fixation devices, one to hold the osteotomy site and the other to fix the head fragment.

Displacement osteotomy is peculiarly suited to degenerative arthrosis of the hip, ununited fracture with avascular necrosis of the femoral head, and occasional cases of tuberculosis. By this procedure the operator is trying to relieve the femoral head from weight bearing.

Internal fixation can now be used to prevent the need for postoperative cast immobilization.

Simultaneous obturator neurectomy is done by some operators routinely at the time of displacement osteotomy to relieve pain due to impingement of muscles at the time of osteotomy.

For degenerative arthrosis the displacement osteotomy is more popular in countries other than the United States, but with the use of internal fixation, it is gaining popularity.

Milch first reported, in 1943,[15] the use of resection of the femoral head with pelvic support osteotomy for ankylosis of the hip. He summarized a follow-up on cases with some more detailed advantageous changes in technique in a report in 1955.[16] He shows that femoral mobility is produced by resection of the femoral head and neck. Re-establishment of stability is by means of a pelvic-support osteotomy. The post-

osteotomy angle must be congruent with the angle of inclination of the pelvic wall. This varies from 206 degrees in the female to 211 degrees more or less percentage of error, and it must be determined preoperatively.

We have not discussed today the use of arthrodesis in the treatment of the same conditions. With particular reference to unilateral hip joint disease, we do not forget the frequent use of arthrodesis to afford pain-free stability of a diseased hip joint.

SUMMARY

A brief review of some of the basic principles of reconstructive procedures of the hip has been presented—along with some attempt to tabulate the advances. The age-old problems of hip joint disease and injury have not all been solved, but with the strides in internal fixation, in lessening postoperative immobilization, and in the stress on functional reconstruction, we feel that we have something to offer a higher percentage of these patients. Osteotomy is not to be advocated in every case, but when it is applicable it is frequently the simplest solution to the problem and the one most likely to endure. The uses of arthrodesis or arthroplasty must not be overlooked in our evaluation of cases. Arthroplasty, prosthetic femoral heads, and as yet some undiscovered procedures will always be preferable in certain cases, but they should not be used to the exclusion of the simpler and frequently more effective osteotomies.

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SOME ASPECTS OF ALCOHOLISM *

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I would like to discuss two aspects of the character disorder known as chronic alcoholism, one dealing with understanding of the behavior pattern, and the other concerning the dynamics of effective treatment.

For centuries, alcoholism has been a mysterious malady, particularly baffling and frustrating to the physician called upon to treat it. In the past few decades, the veil of mystery has been slowly pushed aside so that today many of us have entirely new attitudes about it.

With the introduction into psychiatry of the idea that all behavior, from the average to the most bizarre, has an understandable purpose, and that we need only keep our eyes open for these purposes to become apparent, it becomes possible to throw light into previously darkened areas. As it later developed, it was necessary to survey the entire life history of an individual in order to see clearly why he behaved in one way or another. Keeping this concept in mind, I believe we can begin to understand alcoholic behavior. As I have implied, it is necessary to com-

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prehension that we go beyond investigation of just the symptoms and see the patient in his past and present environments, when he is sick and when he is well.

We can arbitrarily begin by observation of a representative sample while he is sober. He impresses us as a reserved, sensitive, shy person, extraordinarily contented with passive activities. He is usually of average, and sometimes of superior intelligence, has often held good jobs in which he may have excelled but rarely is he promoted and seldom is he self-employed. In a social setting without alcohol, although usually acceptable, he rarely expresses his opinions, preferring simply to agree with those of others. If he does express an opinion, it is readily changed by the pressure of persuasion. He has a constricted range of interest enjoying no constant hobbies or extracurricular activities. To many, he is "a nice guy", and you know this defines people who always agree with us. He rarely gets angry, even when provoked. If married, he "gets along" with his wife, but she seems always to be the more aggressive, more opinionated, "stick - to - your - guns" type than he. If single, his interest in the opposite sex is often fleeting and inconsistent. He is ordinarily in debt, sometimes heavily so.

Now what happens when he begins to drink? This ordinarily quiet, reserved, nice guy becomes increasingly verbose and opinionated, more resistive to persuasion, more assertive, and is now easily angered, sometimes he even fights. He appears more comfortable and is a match for anyone in an argument. There seems to be more than the usual degree of personality change with the addition of the spirits. Later, though, when everyone else has gone home, he remains, still drinking, consuming more than anyone else, and this may go on for several days, weeks, or months. His family suffers, his employer suffers, his anxious friends suffer, his bank account and debtors suffer. He causes pain and anguish to everyone concerned with him. Finally, he is exhausted and delirious and passes through the withdrawal ordeal, often in jail or serving a sentence in the local workhouse. He arrives at sobriety to receive the exhortations, warnings, threats, pleas, advice and sermons of the well-meaning aforementioned, designed to stir up his guilt for this "shameful" behavior, and to make him sufficiently repentent and contrite, and he again obligingly agrees. Sooner or later this series of events is repeated, and he eventually incurs the frustration-procured wrath and rejection of all. He may in time slip to the "skid row" level, working only to keep himself supplied with the soporific ego remedy. Reliability, honesty, ability to respect himself are no longer his. Thus the all-too-familiar pattern of alcoholic behavior.

As doctors we usually see and follow the progress of the disease only from the time the symptoms become overt and troublesome, (more often after they have become troublesome to others). The pathology, however, has been present for a long time, and the incubation period here is often in terms of *years*. I suspect that all *true* alcoholics experience similar emotional events which begin very early in life, and continue on through their formative years.

What is this common experience the alcoholics go through in their early life? The significant problem they all have is one with which you are familiar—maternal domination. There seems to be a need in these mothers to surround themselves with the helpless, which includes their husbands, probably in order to feel strong themselves. Such mothers make the helpless attitude too attractive and discourage growing up. Therefore, the child never gets over the attachment to this period in his life when his needs are sensed and fulfilled immediately; mother does not even wait for him to cry to show that he needs something; she sees to it that he always gets a lot more than he needs, and he experiences little or no denial. Later we find that such careful training has created a placid

child, very agreeable, and easily bent to the will. He comes to expect and rely on her opinions, her judgment, and if he differs, he learns that he must not "sass" or else she may remove entirely the expected support. He secretly yearns to be independent, to get on his own, but she refuses to allow this, preferring her "wisdom" to his, and never permitting him the pleasure of making mistakes. Whatever individualism he has must be suppressed and he grows up and up, ever in the ominous shadow of mother's skirts, all the while storing up a lot of angry feelings over being denied the right to take his chances with the rest. So the boy grows into the man, but he is a crippled man, unaccustomed to the adult prerogatives of making mistakes, asserting himself, making decisions and sticking by them, taking the blame and being deprived.

Let me say here that there are degrees of crippling, just as in other pathological conditions, and I am sure, under the proper circumstances ("corrective emotional experiences") a certain amount of healing can take place. This may account for some variation in resistance to the disease.

When faced with these adult privileges, he becomes confused and frightened at these unknown things, and begins to long for the secure feeling he knew when mama ruled the roost. He unconsciously and automatically expects of others that they should treat him like she did; he unconsciously perceives the world as peopled with "Big Mamas". A lot of inner conflict develops because others do not treat him in this manner, and he has learned no other way to relate to them. This produces an ever increasing amount of painful feelings and anger.

Then, like manna from heaven, comes his discovery of alcohol. With this he finds that he can get the pleasurable, temporary feeling of maturity, that he can acquire the feeling of "I can" and temporarily abolish the feeling of "I can't" stored somewhere in his cortex. Later he discovers that he can at last express his anger and defiance, and can retaliate against his mother and her surrogates (society) by making them suffer through his prolonged drinking. This is his way of "winning the battles" and proving that he is master of his own destiny. All the while he is operating on the unconscious delusion that he is gaining mastery over mama. One can see that he is attempting to return to his earlier years, a regression which demonstrates beautifully the conflict between maturity and immaturity.

A simple way of summarizing the entire matter would be to say that the sober period represents the desire to be "good" (to be passive, completely agreeable with his strong mother-conscience) and the drinking period symbolizes the desire to be "bad" (to be mature, aggressive, opinionated, decisive, manly.)

Now to consider treatment. Since we know what the alcoholic is striving for, we can more effectively deal with his problem. His behavior constantly provokes us to act like the rest, to reject and condemn him, to advise, and coerce. But this is fatal to success in treatment. The therapist's job is to take an attitude quite *opposite* to the one expected. Now this is not as simple as it sounds. He calls from a jail or bar at all hours of the night, fails to pay his bill, misses his appointments, or keeps them, but presents himself in the office "stewed to the gills". Such activities make it very difficult, to say the least, in maintaining a kindly sympathetic permissive attitude. So often this acting-out "protects" the patient from effective individual therapy by inciting the rejection of the psychiatrist.

A.A. treatment seems to produce better results in the average alcoholic than individual psychotherapy, and these, I believe are the reasons why. This group believes in a physical and moral cause for alcoholism, thereby removing the stigma of psychiatric illness, and making treatment by them less threatening. They are really the only eclectics since they believe in these causes, yet certainly use psychi-

atric treatment on each other. The patient gets nowhere with his provocative behavior since they charge no fees, make no demands, only offer their help, are available day or night, and are tolerable and sympathetic and devoted always. What is a liability in average society becomes an asset in this new society—You *must* be an alcoholic to gain admittance to this exclusive club. The patient learns that shame and guilt is not warranted here, even competing with others in telling of his past "binges", and eventually becoming very proud that he was once an alcoholic; so much so, that he often remains anything but anonymous. Another important factor in operation, of course, is his identification with the "strong" and the pride in helping the "weak". Without question, the success of any form of treatment depends on how effective one is in making the sober period more pleasant, tolerable and attractive, and in eliminating the shame, guilt and remorse of the drinking period.

I have tried to summarize here some of my ideas as to the dynamics in the disease process and repair process in chronic alcoholism I must admit that my experience in this field has been limited to a certain class of patients and that what I described may not apply to the entire group. It is my hope that these concepts may be stimulating to you.

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TYPHOID FEVER - RICHLAND PARISH 1954-1955

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Two outbreaks of typhoid fever occurred in Richland Parish, Louisiana, in 1954 - 1955. One outbreak started in Arkansas, spread to Louisiana, and from there to California. The other started in and was confined to Richland Parish, Louisiana. Twenty-nine residents of Richland Parish became infected and 4 associated cases were residents of other states (Arkansas 2, and California 2).

Richland Parish has a population of about 29,000 persons, 60 per cent of whom are white.

The area of the parish in which the outbreak occurred is made up largely of cotton farms operated by Negro tenants. These families live in small frame homes under crowded conditions. Their personal and household hygiene habits are very poor. Few of the farms possess a safe water supply, sanitary excreta disposal, or other sanitary facilities.

Typhoid is endemic in Richland Parish. In the period 1946 through 1955, an average of 7 cases per year were reported. Physician reports of communicable diseases occurring in rural areas rarely show the exact place of residence of the sick person. The exact number of cases of typhoid occurring in previous years and residing in the locale presently affected therefore is unknown.

Typhoid, in recent years in Louisiana, has occurred in sporadic outbreaks. Widespread explosive epidemics due to contaminated milk and water supplies are no longer observed. Most cases today are the result of contact with a recent case of typhoid or with a typhoid carrier.

In May 1954, 5 cases of typhoid fever were diagnosed in Richland Parish and reported to the parish health unit. Epidemiological investigations were started by the personnel of the parish health unit, but as the number of reported cases increased, assistance was requested of the State Department of Health.

The first diagnosed case was an 18 year old Negro, female from El Dorado, Ark. Unfortunately, the Vi bacteriophage type of the typhoid organism causing this woman's illness was never determined. She became ill on March 13, 1954. This patient's parents live in Richland Parish and she gives a history of frequent visits to their household.

Louisiana's first case was the 13 year old sister of the Arkansas woman. This child visited her sister in Arkansas on April 4, 1954, at which time the Arkansas

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woman was hospitalized with typhoid. This Louisiana child became ill on April 7, 1954. Since only three days elapsed between the date of the visit and the date of onset, it seems unlikely that she contracted her infection while in Arkansas.

Extensive investigation of this, the first Louisiana case and her contacts, revealed contact with the 2 year old son of the Arkansas woman and that this child had had a intermittent diarrheal disease for about sixteen months. *Salmonella typhosa*, bacteriophage type J was isolated from his stool. At the time of this isolation, *Salmonella typhosa* bacteriophage type J had not been previously isolated from typhoid cases in Louisiana.

The child of the Arkansas woman spent considerable time at the home of his grandparents in Louisiana, but exact dates are not available. His mother states that he had had recurrent bouts of diarrhea since February 1953, and had been treated with various drugs with varying degrees of success. This child remained in an affected household in Louisiana during the outbreak but at no time did he develop clinically recognized typhoid.

Subsequent Louisiana cases were reported in members of households nearby the residence of the 13 year old girl. Seven cases occurred during the first eleven days of 1955. This was probably the result of increased associations between members of infected and non-infected households during the Christmas season.

By April 1955, the outbreak appeared to be under control as there had been no reported cases in the preceding three-month period. In May, however, a 42 year old Negro, female developed typhoid. This case was believed to be an extension of the original outbreak as she gave a history of contact with members of previously affected households. Two weeks after the onset of her illness, her husband was hospitalized with typhoid due to *Salmonella typhosa* bacteriophage type E-1. Since all previous infections were due to *S. typhosa* bacteriophage type J, we therefore realized that two outbreaks of typhoid were occurring at the same time. Five cases occurred in the type E-1 outbreak.

During investigation of the bacteriophage type E-1 cases, it was discovered that this family obtained raw milk from a neighbor. The neighbor denied ever having had typhoid but *S. typhosa* bacteriophage type E-1 has been isolated consistently from her stool. She is a chronic typhoid carrier.

Laboratory confirmation of the clinical diagnosis was obtained by isolation and identification of *Salmonella typhosa* in 18 of the 29 reported cases in Louisiana. The remaining 11 cases were accepted on the basis of clinical symptoms, strong epidemiological evidence and presumptive serologic findings.

Prior to these two outbreaks, there were no known typhoid carriers in Richland Parish.

Routine follow-up in Louisiana of confirmed typhoid cases consists of the cultural examination for *S. typhosa* of three stool and three urine specimens taken twenty-four hours apart at one, three, six, and twelve months after the discontinuance of drug therapy. If *S. typhosa* is isolated from either the stool or urine one year post treatment, the person is considered a typhoid carrier.

Three persons infected during this outbreak became *Salmonella typhosa* bacteriophage type J carriers and the woman who owned the milk cow has been established as a *Salmonella typhosa* bacteriophage type E-1 carrier.

Fourteen of the persons infected during the outbreak have been shown not to be carriers, 1 person, in addition to the 4 mentioned earlier, is strongly suspected of being a carrier and 11 other persons are under public health surveillance for determination of carrier status.

An analysis of the typhoid vaccination status of the 29 Louisiana cases merits comment. Seven persons were vaccinated less than one month before onset of disease; 2, one to six months before onset; 8, seven to twelve months before onset and 2, two years before onset. One of these last 2 had

received a booster inoculation one year before onset of illness. The remaining 10 cases could not definitely recall having completed a series of typhoid vaccine inoculations and therefore were considered as inadequately immunized.

The mode of spread in the *Salmonella typhosa* bacteriophage type J outbreak was probably through person to person contact. This belief is supported by the close proximity of the households, the poor personal hygiene of the members of the group, the lack of sanitary facilities, the frequent intermingling of the members of the groups and the chronological distribution of the onsets of the illness and because there were no common food or drink sources.

The *Salmonella typhosa* bacteriophage type E-1 outbreak resulted from the drinking of raw milk contaminated by a typhoid carrier.

The importance of good personal hygiene, a safe environment and typhoid vaccination was stressed repeatedly. New sanitary toilet facilities have been constructed, doors and windows screened, water supplies improved and fly control measures instituted at most of the households.

There is a need for further and continued education of this social group. Since sanitary excreta disposal and adequate handwashing facilities are not available, a potential threat to the health of the community exists at the local school attended by the 2 children who have become typhoid carriers.

SUMMARY

Two separate outbreaks of typhoid fever in Richland Parish were investigated and differentiated by the use of the Vi bacteriophage method of typing *Salmonella typhosa*. The first outbreak was spread by person to person contact, whereas the second outbreak resulted from the drinking of contaminated raw milk provided to the affected members of the household by a neighbor who was a previously unknown typhoid carrier. Twenty-eight cases (Louisiana 24, California 2, Arkansas 2) occurred in the J type outbreak and 5 in the E-1 outbreak. Richland Parish, which prior to 1954 had no known typhoid carriers, now has 4 known typhoid carriers.

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Guy R. Jones, M. D.
Ralph H. Riggs, M. D.
C. Prentice Gray, Jr., M. D.
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PHYSICIANS AND THE "MEDICARE" PROGRAM

Public Law No. 569 of the 84th Congress, known as Dependents' Medical Care Act, undertakes to provide medical care for some of the dependents of armed forces personnel through the use of civilian practicing physicians and facilities, in addition to that available from the armed forces, in such areas where care may be needed. The law goes into effect on December 8, 1956, having been passed and signed six months before. This law puts into operation a principle which has been supported by various laws of the Congress and by custom in military installations for over one hundred and forty years that the dependents of armed forces personnel are to be provided with medical care at government expense. The program in some respects resembles the E.M.I.C. program operating during World War II, but with provisions drawn in such a manner as to provide what is hoped to be a more satisfactory result.

The impact of the present "Medicare" Program on the physician will not be great at present, but the potentialities of this plan and the possibility of grafting state medicine on to it in the future are most important. An important effect will be to relieve, in some measure, the situation which calls for drafting of physicians into the armed forces to care for the dependents of armed forces personnel. To this extent it will contribute, it is hoped, to the ultimate defeat of the Doctor Draft law, which in spite of Congressional action and judicial support is obviously unjust and should be held unconstitutional. Another effect of this law will be to transfer care of some of the dependents of armed forces personnel from government agencies to that of organized medicine, which is of course into the private practice of medicine. A third, and also beneficial effect of the law, is the establishment of a definite policy on the part of the government for medical care of the dependents of the armed forces.

Representatives of the Defense Department have made strenuous and commendable efforts to cooperate with the physicians in implementing this law. Tentative plans have been put forward for discussion and clarification, conferences arranged with representatives of organized medicine, and our spokesmen have been equally diligent in their effort to produce a system that will provide satisfactory medical care. It is anticipated that the plan will provide temporary medical care at government expense for some 800,000 wives, children, and other dependents of

the armed forces personnel in this country. The armed forces representatives ask for a contracting agent who will supply the medical care and this is the state medical society. They also ask for a fiscal agent who will undertake to provide administrative clerical needs and serve as disbursing agent. In thirty-two of the states this will be Blue Cross agencies, and in sixteen states by private insurance carriers. In our state the Continental Service Life and Health Insurance Company of Baton Rouge will serve as our fiscal agent. This is the company which has taken over the responsibilities and serviced so efficiently and creditably the contracts of the former Louisiana Physicians Service Insurance Company, or Louisiana Blue Shield, when its difficulties reached the point of requiring outside help.

The law provides that dependents of the armed forces personnel will be cared for in the medical facilities of the uniformed services when these are available, provided this does not interfere with the effective utilization of the facilities for their primary purpose. The care would provide diagnosis, treatment of acute medical and surgical conditions, treatment of contagious diseases, immunization, maternity and infant care, but not for mental and nervous diseases, chronic diseases, or elective medical and surgical conditions except by special arrangement. Home calls are not required except in special cases.

The plan provides for the payment by the patient of hospital expenses up to $25, the government providing payments for amounts over this. The law also provides for a review, and if necessary, adjustments of payments by the armed forces under this plan, not later than one hundred and twenty days after the first year the plan is in effect and each year thereafter. In the many conferences that have been held in preparation for these arrangements it was emphasized that payments would be on a realistic and practical basis. A uniform fee schedule for the whole nation was regarded as impractical by our spokesmen. Each state society organization is in the process of furnishing the representatives of the armed forces with a fee schedule recommended for a particular state. Hospital charges are to be handled on a somewhat similar basis.

The involved processes of furnishing medical care for the government will be a tax on the time and patience of the physician. Physicians have the capacity to cooperate in the operation of this comprehensive medical plan. It is clearly to the very great interest of organized medicine and the individual physician to see that the plan works. The armed forces have it in their power under the laws to draft physicians for this work, to contract with agencies not under the direction of organized medicine, and to deal with organized medicine. We, as physicians, have reason to object to the first two of these alternatives. It behooves us to see that it works and is made satisfactory to the public, the armed forces, and ourselves.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

STANDING COMMITTEES
1956 - 1957

ARRANGEMENTS FOR 1957 ANNUAL MEETING

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BUDGET AND FINANCE

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CONGRESSIONAL MATTERS

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JOURNAL

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C. M. Horton, M. D., Vice-Chairman, Franklin, 1 year; Sam Hobson, M. D., Secretary, New Orleans, 2 years; J. E. Knighton, M. D., Shreveport, 2 years; Edwin H. Lawson, M. D., New Orleans, 3 years.

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1956 - 1957

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NOMINATIONS (COMMITTEES TO BE ELECTED AT 1957 ANNUAL MEETING)

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PUBLIC HEALTH OF THE STATE OF LOUISIANA

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BACTERIOLOGY & PATHOLOGY

Dr. S. D. Cummins, Shreveport

CHEST

Dr. L. H. Strug, New Orleans

DERMATOLOGY

Dr. J. D. Youman, Jr., Shreveport

DIABETES

Dr. A. A. Herold, Sr., Shreveport

EAR, NOSE & THROAT

Dr. Jack Pou, Shreveport

EYE

Dr. L. F. Gray, Shreveport

GASTROENTEROLOGY

Dr. Donovan C. Browne, New Orleans

GENERAL PRACTICE
Dr. J. C. Sanders, Shreveport

GYNECOLOGY
Dr. C. H. Tyrone, New Orleans

HEART
Dr. G. E. Burch, Jr., New Orleans

MEDICINE
Dr. Edgar Hull, New Orleans

NEUROPSYCHIATRY
Dr. Gene Usdin, New Orleans

OBSTETRICS
Dr. M. A. Schudmak, Baton Rouge

ORTHOPEDICS
Dr. Rufus H. Alldredge, New Orleans

PEDIATRICS
Dr. Conway Magee, Lake Charles

PUBLIC HEALTH
Dr. R. L. Simmons, New Orleans

RADIOLOGY
Dr. George Woolhandler, Shreveport

SURGERY
Dr. C. E. Boyd, Shreveport

UROLOGY
Dr. Eugene C. St. Martin, Shreveport

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MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twentieth annual meeting of The New Orleans Graduate Medical Assembly will be held March 11, 12, 13 and 14, headquarters at the Municipal Auditorium.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. The program will include fifty-four informative discussions on many topics of current medical interest, in addition to clinicopathologic conferences, symposia, scientific exhibits, medical motion pictures, round-table luncheons and technical exhibits.

The Assembly has planned another interesting postclinical tour to follow the 1957 meeting in New Orleans. On Saturday, March 16, a party composed of doctors and their families, will leave from New York for the Mediterranean and Europe via plane. The itinerary includes France, Greece, Turkey, Egypt, Jerusalem, Lebanon, Syria and Italy. Arrangements have been made for medical programs in the places visited. The official tour terminates in Rome on Friday, April 12, but arrangements may be made for independent travel to any points in Europe desired, with return to the United States by air or steamer.

Details of the New Orleans meeting and the postclinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

HEART-LUNG MACHINE USED SUCCESSFULLY AT CHARITY HOSPITAL

The heart-lung machine was used successfully at Charity Hospital in New Orleans on August 31 in what was probably its first use on a human in the state.

The patient, a 22-year-old male, was stabbed in the left anterior chest on July 31, 1956. He was brought to the hospital in shock and an emergency thoracotomy was performed with suture of a perforating wound of the left upper lobe and a penetrating wound of the outflow tract of the right ventricle. In the early postoperative period a harsh systolic murmur was noted for the first time, and subsequent cardiac catheterization confirmed the clinical impression of a ventricular septal defect, probably acquired as a result of the stab wound. Because of the early untoward effects of the left to right shunt, operative closure of the defect was advised. Utilizing a bubble-type oxygenator, complete cardiac bypass was achieved and a repair of the defect carried out under direct vision.

The operation was performed by a team of surgeons from the department of surgery in the

Tulane University School of Medicine, assisted by physicians from the school's department of medicine.

The patient's condition following the operation was described by the head operating surgeon as "excellent" and the patient's recovery to date has been uneventful.

This case represents an unusual type of septal defect with respect to etiology as opposed to the large variety of defects of congenital origin, many of which are successfully being repaired utilizing similar techniques.

REVISED LIST OF A.M.A. FILMS AVAILABLE

A revised list of films available through the A.M.A. motion picture library has been prepared and copies are available upon request from Motion Pictures and Medical Television of the American Medical Association. This catalog lists 89 medical films suitable for showing to medical societies, hospital staff meetings and other scientific groups. The catalog also includes 45 health films of interest to physicians who may be called upon to speak before lay audiences such as service organizations, Parent-Teachers' Associations, etc.

AMERICAN RHINOLOGIC SOCIETY

Dr. Ralph H. Riggs of Shreveport and Dr. H. Ashton Thomas of New Orleans were presented the Golden Head Mirror Honor Award of the American Rhinologic Society "for meritorious sharing in the service of rhinology" at the second annual banquet of the American Rhinologic Society, Chicago, October 13, 1956.

The society held its second annual meeting October 9-13. About 100 specialists from all parts of the country witnessed demonstrations of the latest techniques in nose surgery presented at the Illinois Masonic Hospital.

Dr. Riggs participated in the workshop demonstrations and as president of the society presided over the annual meeting and annual dinner. He was elected to the board of directors upon his retirement as president, January 1, 1957.

CARE OF ARMY MILITARY PERSONNEL AWOL

In a number of cases physicians and hospitals have accepted for emergency treatment members of the Army who were in a status of absent without official leave (AWOL). Upon subsequent submission of vouchers for payment, the physician or hospital has had to be informed that current regulations preclude the payment from public funds for medical treatment rendered military personnel in such a status.

In an effort to inform interested persons of the means whereby payment may be authorized for emergency treatment of a person who is first seen in an AWOL status, it is believed that the proper procedure should be publicized through state journals.

Upon the acceptance by a hospital or physician of a member of the Army, immediate report should be made to the Army commander of the Area in which the civilian medical care is required, the chief of the military district of the area, the nearest Army post commander or the individual's commanding officer, giving the individual's name, serial number, organization, military address, status, nature of illness or injury and statement of the practicability of transfer of the patient to an Army or other governmental hospital. This procedure should be accomplished whether the person is absent with or without official leave in order that his parent organization may be informed of his continued absence by reason of illness or injury. A similar report should be rendered if for any reason an unconscious patient is believed to be a member of the Army. On receipt of an acknowledgement from military authorities authorizing the civilian hospital or doctor to treat the case, the charges for medical care furnished AWOL personnel subsequent to receipt of the authorization may be paid. These statements apply to practically every situation except when unauthorized medical care is furnished for a condition that is not an emergency.

Statements of account for payment may be forwarded to the individual's commanding officer, or The Surgeon, Fourth Army, Fort Sam Houston, Texas, who will transmit them to their proper destination.

CARDIAC ARREST SURVIVAL CHANCES INCREASING

Patients with sudden unexplained heart stoppage during surgery have a better chance of recovery now than they did five years ago, due to increasing use of new emergency techniques.

Drs. Bernard D. Briggs, David B. Sheldon and Henry K. Beecher, Boston, said that cardiac arrest is the major single cause of operating room deaths. Its occurrence has increased, but the chances of survival have also increased, because of immediate diagnosis and treatment.

The rise in the number of cases is due to the current awareness of the problem which leads to more frequent diagnosis, and to the larger number of operations performed on aged or very ill patients, they said in the April 28 Journal of the American Medical Association.

Treatment of cardiac arrest during surgery consists of prompt opening of the chest wall followed by hand massage of the heart, artificial respiration with oxygen, and use of drugs, they said.

The physicians made a study of all cardiac arrest cases at Massachusetts General Hospital, Boston, from 1925 to 1954. There was a steady decrease in the rate of cardiac arrest for the first

20 years of the period, followed by a marked increase in the last decade, particularly in the last five years, they said.

MEDICAL MALPRACTICE INSURANCE [1]

The Malpractice Insurance and Defense Board of the Medical Society of the State of New York calls attention to the very excellent article, "What Price Medical Malpractice Insurance?," which appeared recently in **California Medicine.**[2] Its author, Dr. Joseph Sadusk, Jr., is chairman of the Medical Review and Advisory Board of the California Medical Association, which has been established as a committee of the California Medical Association "to make studies and recommendations toward solution of the growing problems of professional liability insurance and malpractice actions in California."

The problem is with us whether we like it or not. It cannot be ignored or wished away. But it can be studied intelligently with the purpose of developing all the facts first and then endeavoring to arrive at sound conclusions from them.

As **California Medicine** says, editorially, "The medical profession . . . cannot withdraw from the problem of professional liability. Physicians will have to continue to live with it. Medical malpractice is therefore a problem of medicine. It is not something the profession can leave to the insurance companies. It demands the interest and cooperation of every physician. It demands the study and effective, intelligent action of every medical organization,"

[1] Editorial: New York State Journal of Medicine, Vol. 56, No. 10: 1580 May 15, 1956.
[2] California Med. 83: 389 (Nov.) 1955.

CHEMICAL TREATMENT OVERCOMES PARKINSONISM SYMPTOMS

A new proceduce of injecting chemicals into one part of the brain has been successful in restoring some "shaking palsy" victims to more normal life, three New York neurosurgeons reported recently.

The new method, called chemopallidectomy, was used on 125 Parkinsonism patients, with good results in 70 per cent of the cases, Drs. Irving S. Cooper, Nicholas Poloukhine and Aldo Morello said in the April 28 Journal of the American Medical Association.

The procedure relieves the uncontrollable tremor and muscle rigidity of Parkinson's disease (also called "shaking palsy") and related disorders without impairing the ability to move. Some patients, who had been completely or nearly helpless, could walk, care for themselves, and even work after treatment.

Chemopallidectomy consists of destroying a region in the globus pallidus, which lies in front of the thalamus. When the globus pallidus is diseased, it contributes actively to the development of tremor and rigidity. Procaine, injected into the area through a tube inserted into the brain, immediately relieves tremor and rigidity in the limbs. Later, alcohol is injected into the globus pallidus to complete the operation.

Of the first 50 patients undergoing chemopallidectomy one and a half to two and a half years ago, 65 per cent had good lasting results. Four procedures were unsuccessful, with two resulting in death.

MYOCARDIAL INFARCTION RISES AMONG WOMEN

The rate of myocardial infarction, a type of heart disease, rose sharply among women about 1940, according to a study of autopsies performed over a 45-year period in a large Midwestern hospital.

From 1910 to 1939 twice as many men as women had myocardial infarction, but from 1940 to 1954 the number was almost the same—1.1 men to 1 woman, the autopsy reports of Barnes General Hospital, St. Louis, showed.

If the ratio has actually changed in the general population since 1940 as it has in the Barnes Hospital autopsy series, it is "of profound significance," Drs. Kyu Taik Lee and Wilbur A. Thomas said in the April Archives of Internal Medicine, published by the American Medical Association.

It has been widely believed that myocardial infarction, a condition in which heart muscle cells become deadened, occurs much more frequently among men than women. The St. Louis figures contrast sharply with ratios such as 3 to 1 or 7 to 1 reported in other studies based on diagnostic information, they said. Even in Barnes General Hospital, the ratio was 2.4 men to 1 woman among patients diagnosed on admission to the hospital.

FURTHER REASON FOR THOROUGH COOKING OF PORK GIVEN

Findings of a recent study by two Yale University investigators have given further reason for making sure that pork is well cooked.

The study gave evidence that another disease, besides trichinosis, may be acquired by eating undercooked pork. The disease, toxoplasmosis, resembles pneumonia in its symptoms.

It was studied by David Weinmann, M. D., and Anne H. Chandler, M. T., New Haven, Conn. Their report appears in the May 19 Journal of the American Medical Association.

The researchers did not prove that eating undercooked pork is the only way of transmitting the Toxoplasma, but they felt that they had accumulated "very suggestive" evidence incriminating it as one transmitting agent.

The disease, caused by the protozoan Toxoplasma, is now "extremely common," they said, although 10 years ago it was considered to be

rare. In fact, in some parts of the country from 30 to 70 per cent of the population in the 40 to 60 age group is infected, they said. Normally the disease is not severe and only acute cases receive much attention.

ABSORBABLE SPONGE

The United States Patient Office has issued a patent on an artificial sponge, having the general characteristics of a conventional sponge, but which is absorbable and readily assimilable by living animal bodies.

The patent, No. 2,731,015, was assigned to the Commonwealth Engineering Co. of Ohio, Dayton, Ohio, a firm which has been a leader in the development of uses for dextran, the basic material of the new sponge.

"The very act of removing a conventional sponge from the body (during surgery) often initiates hemorrhaging," the patent states. "On the other hand, real damage results if the non-absorbable materials are not removed.

"One object of this invention is to eliminate these and other problems by providing a new porous or sponge-like material . . . which is absorbable and readily assimilated by the human body without harmful effects so that if it is placed in an incision, for example, the latter may be closed without removal of the porous material."

STUTTERING CALLED PERSONALITY DEFECT

Stuttering is a personality defect rather than a speech defect, and treatment must be aimed at the underlying emotional difficulties, reports a New York psychiatrist.

In a signed editorial in the April 28 Journal of the American Medical Association, Dr. Smiley Blanton of the American Foundation of Religion and Psychiatry said there are three functions of speech: expressing emotions, adjusting to other people, and expressing ideas.

Stuttering is a blocking of a person's ability to adjust to other people, arising from anxiety in meeting various social situations. Stutterers usually can talk to themselves, to animals, and often to people with whom they are friendly, but not in situations where fear and anxiety are aroused, he said.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

The annual meeting of the Woman's Auxiliary to the Southern Medical Association will be held concurrently with the Southern Medical Association convention at the Mayflower Hotel in Washington, D. C., November 12-15, 1956.

The program includes the usual business sessions and the special activities, which speak eloquently of Southern hospitality, include a tea, a Doctor's Day Awards Luncheon and tours of Washington, Woodlawn and Mt. Vernon.

The Southern Auxiliary originated in New Orleans, La., in 1923. Three members of the Woman's Auxiliary to the Louisiana State Medical Society have been president of Southern: Mrs. Arthur A. Herold, Mrs. Wiley R. Buffington, and Mrs. George A. Feldner. All three of these members are tireless and ardent workers in the medical auxiliaries. Mrs. Feldner designed the plaque which was presented by the past presidents, the president and the president-elect of the Auxiliary to the Southern Medical Association for their headquarters in Chattanooga, Tenn., on Oct. 2, 1956, for their Golden Anniversary Celebration. In addition, Southern further has honored one of our members by inviting Mrs. Edwin R. Guidry, Southern Councilor for La., to give the response to the welcome at the convention in Washington.

All of us who attended the State Convention in Alexandria remember Mrs. John H. O'Connell, president, Woman's Auxiliary to the Southern Medical Association, who reported on the activities of Southern. Mrs. O. W. Robinson, president-elect, will be remembered by many of us when she attended the Graduate Medical Assembly in New Orleans last March. A successful meeting is the result of careful and thoughtful planning and with Mrs. O'Connell and Mrs. Robinson in charge those attending will reap the benefits of an entertaining convention.

Mildred G. Carter, Chairman
Press and Publicity

ORLEANS PARISH

The Woman's Auxiliary to the Orleans Parish Medical Society held its first meeting of the fall season October 10, at 2:30 p. m. at the Orleans Club. Mrs. Brunswick Deutsch gave a dramatic reading.

Receiving were Mrs. Abe Golden, president of the Auxiliary and the guests of honor, Mrs. W. A. K. Seale, president of the Louisiana State Medical Auxiliary, and the past presidents of the Woman's Auxiliary to the Orleans Parish Medical Society: Mms. S. M. Blackshear, Isidore Cohn, W. Rogers Brewster, Jules Myron Davidson, Aynaud F. Hebert, Paul G. Lacroix, John S. Dunn, H. Theodore Simon, Carrol F. Gelbke, Joseph D'Antoni, Anees Mogabgab, Boni J. deLaureal, John T. Sanders, Louis Leggio, Edwin R. Guidry, Spencer B. McNair, and Robert Rougelot.

Alternating at the tea and coffee services were Mms. S. M. Blackshear, Isidore Cohn, W.

Rogers Brewster and Jules Myron Davidson.

Hostesses for the event were Mms. Lucien Alexander, Branch Aymond, Emile A. Bertucci, Sr., Richard L. Buck, John W. Bick, Jr., David Bradley, James Treadway, Fred O. Brumfield, O. R. Depp, E. H. Countiss, John C. Dubret, Frank L. Faust, T. C. Sherwood, and Gilbert Tomskey.

At the meeting it was announced that one of the Auxiliary's goals for the year is the sponsoring of another nurse through nursing school.

Mrs. Rufus Alldredge and Mrs. A. O. Goldsmith, Membership Chairmen, have added 51 new members to the Auxiliary's membership list. They made a plea to the membership to invite former members to once again become active, and to interest potential new members to join. Contact Mrs. Alldredge (Tw 5-5353) or Mrs. Goldsmith (Un 6-8741) for membership invitations.

Mrs. Jacques Magne, Tuberculosis Chairman, (Un 6-4609) asked for volunteers on Mondays to help with the Tuberculosis Seal Drive.

Kits for the Essay Contest have been distributed to schools throughout the city by Mrs. Frank Oser, Jr. and Mrs. James L. Treadway, Essay Contest Chairmen. They hope that with a choice of subjects (in the past there has only been one) even more schools and students will take an active part. The themes this year will be "The Advantages of Private Medical Care" and "The Advantages of the American Free Enterprise System".

The Auxiliary's next meeting will be held on Nov. 14.

Beryl Kelleher (Mrs. Robert C.)
Publicity Chairman
Un 6-6982

—o—

BOOK REVIEWS

Basic Surgical Skills. A Manual with Appropriate Exercises; by Robert Tauber, M. D., F. A. C. S., Philadelphia, Pa., W. B. Saunders Company, 1955, Pp. 75, Price $3.75.

Dr. Tauber has attempted to provide a manual to instruct the novice in surgery in the basic knots and sutures that are the "ABC's" of surgical technique. He also has designed a simple training board on which these knots and ligatures can be practiced. Unfortunately, the most difficult way to learn knot-tying and suturing is through the aid of a manual. Many manuals have been designed, and I find that I, for one, usually get hopelessly lost in attempting to follow the diagrams about one-third of the way through the procedure. Consequently, my feeling is that the student can learn knot-tying with a much more economical expense of time by securing the instruction of one of his teachers for a few minutes rather than by trying to figure it out with a manual. One point of interest that might be mentioned here, is that the author recommends the use of a knot-holder instrument for tying square knots under tension. My feeling is that if the tension on a suture is such that it cannot be tied with ordinary technique, that it will not be very long before the suture will cut through the tissue or break under the strain and, accordingly, repair should be designed in some other fashion.

The instructions and demonstrations of the various basic sutures are more clear and perhaps this is the most useful part of this manual. I think that it would be of considerable value if the author had indicated where such sutures were used and for what purpose.

Another criticism that I have of this manual is that the author has devoted almost one-quarter of the book to certain techniques that he finds useful in gynecological surgery. These techniques relate to massive ligation of tissue in order to acquire hemostasis, whic I feel should be resorted to only under exceptional circumstances rather than as a "basic surgical skill."

I think, also, that there are some obvious deficiencies in description of suturing techniques and ligatures that have been neglected in this manual, for example, some of the suturing techniques employed in repair of tendons. In addition, certain basic techniques which are frequently employed in orthopedic or plastic surgery are not included.

In view of the criticisms mentioned above, I would hesitate to recommend the purchase of this manual to medical students or junior house officers.

Edward T. Krementz, M. D.

PUBLICATIONS RECEIVED

Philosophical Library, N. Y.: Dictionary of Poisons, by Ibert Mellan and Eleanor Mellan.

W. B. Saunders Co., Phila.: Roentgen Signs in Clinical Diagnosis, by Isadore Meschan, M. D., with the assistance of R. M. F. Farrer—Meschan, M. B., B. S.; Dermatology, by Donald M. Pillsbury, M. D., Walter B. Shelley, M. D., and Albert M. Kligman, M. D.

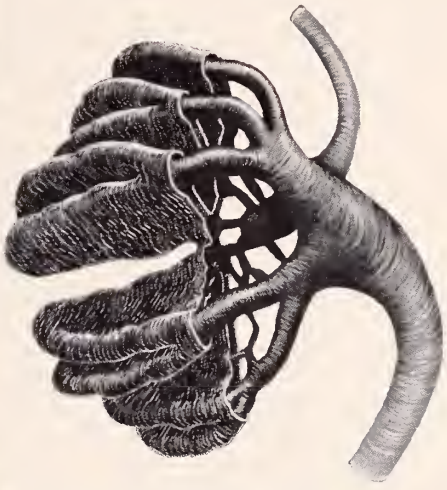
Charles C Thomas, Publisher, Springfield, Ill.: Etiologic Factors in Renal Lithiasis, compiled and edited by Arthur J. Butt, M. D.; Urology and Industry, by Leonard Paul Wershub, M. D.

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[1]Posner, A. C., *et al.;* Further Observations on the Use of Tetracycline Hydrochloride in Prophylaxis and Treatment of Obstetric Infections, *Antibiotics Annual* 1954-55, pp. 594-598.

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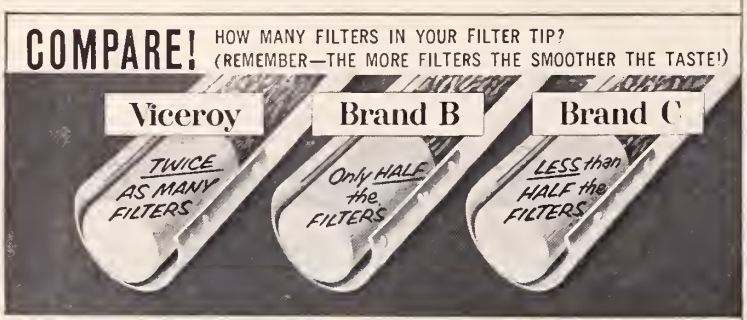
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superior control of infectious disease through superior control of the changing microbial population

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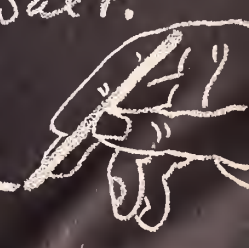
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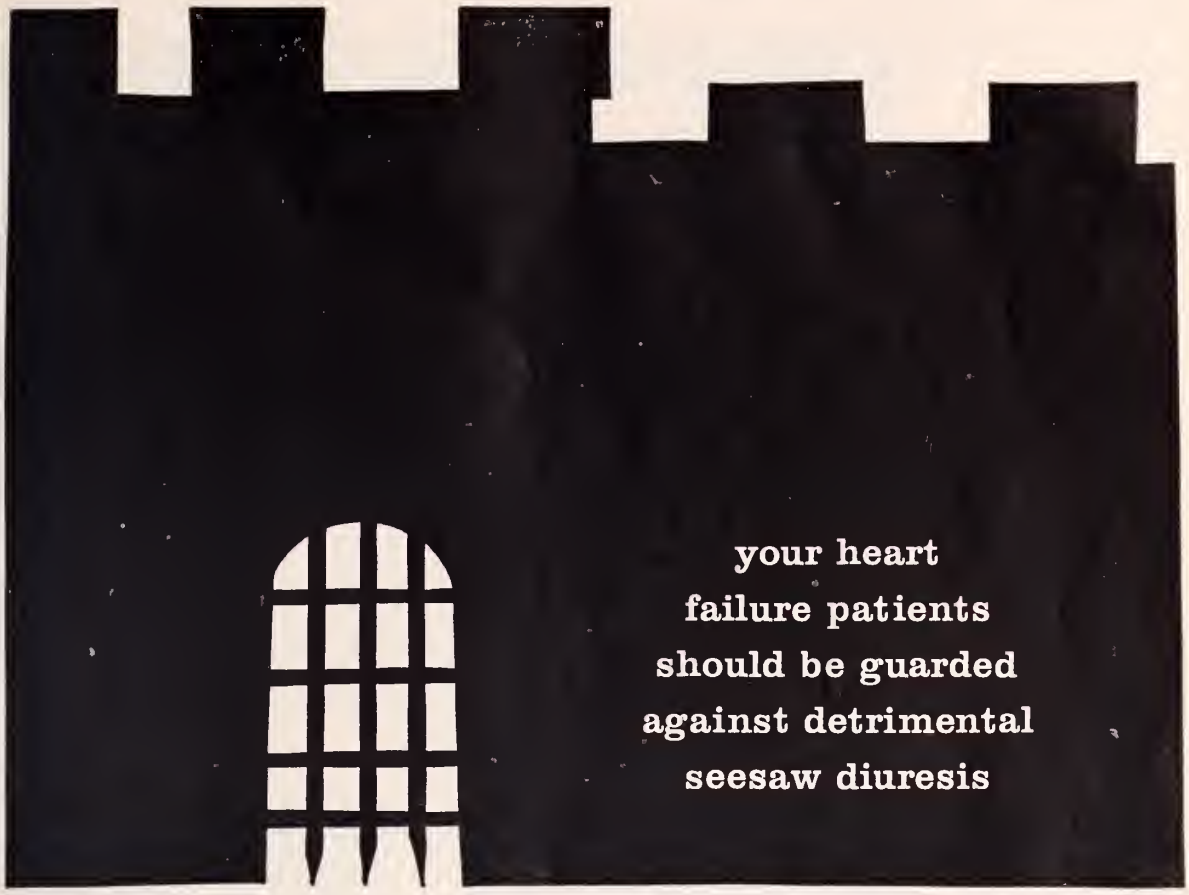
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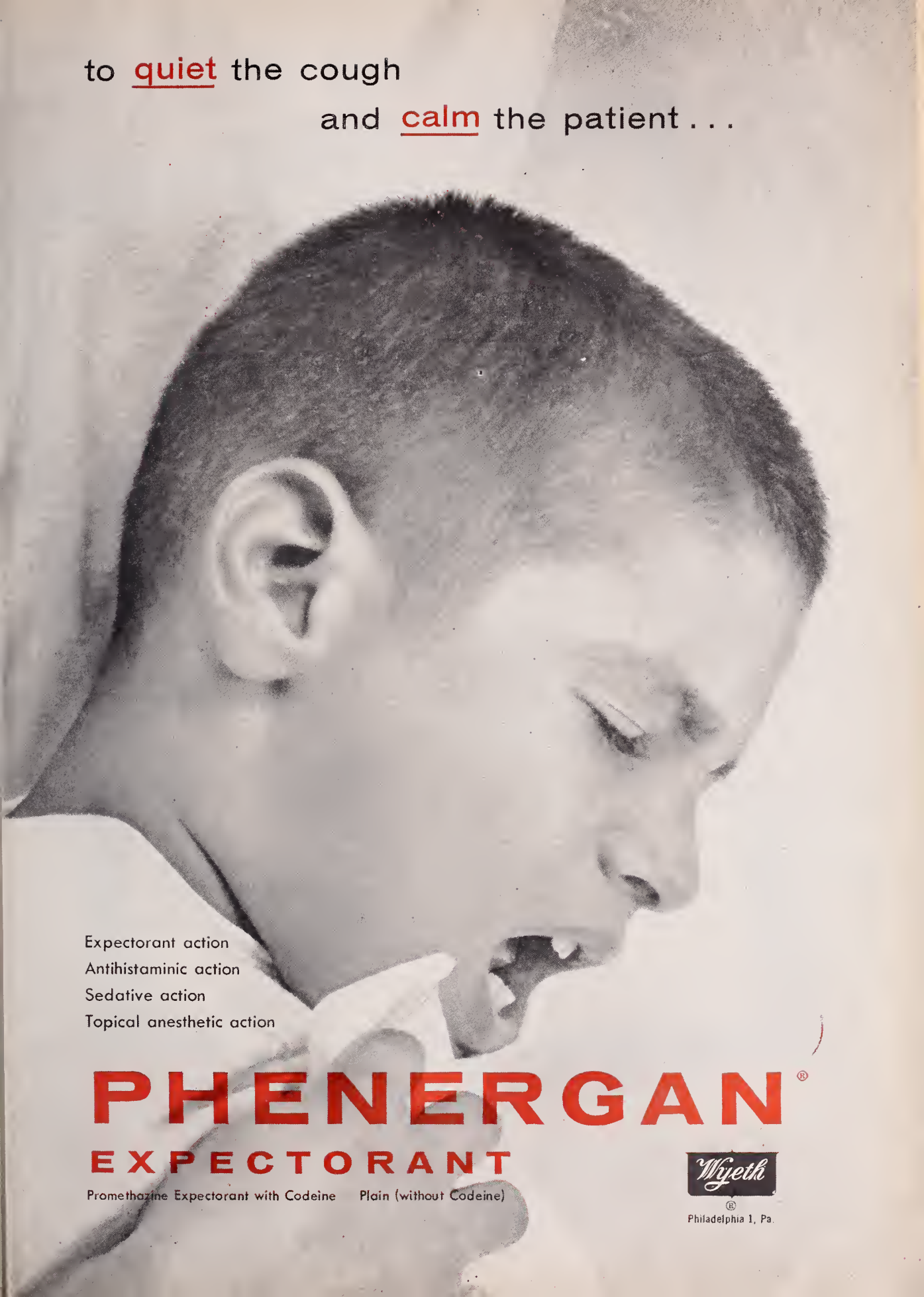
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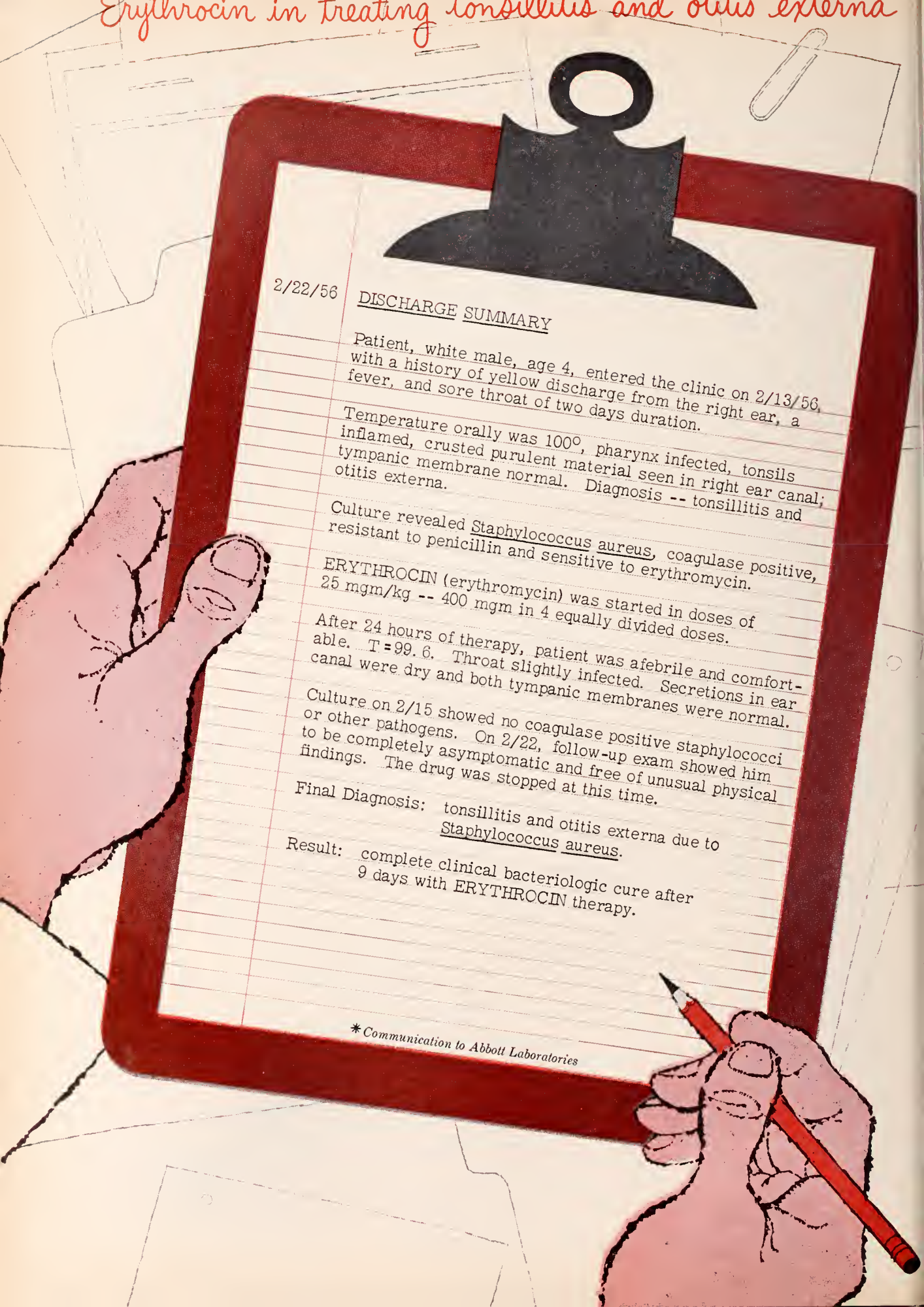
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Erythrocin in treating tonsillitis and otitis externa



2/22/56

DISCHARGE SUMMARY

Patient, white male, age 4, entered the clinic on 2/13/56, with a history of yellow discharge from the right ear, a fever, and sore throat of two days duration.

Temperature orally was 100°, pharynx infected, tonsils inflamed, crusted purulent material seen in right ear canal; tympanic membrane normal. Diagnosis -- tonsillitis and otitis externa.

Culture revealed Staphylococcus aureus, coagulase positive, resistant to penicillin and sensitive to erythromycin.

ERYTHROCIN (erythromycin) was started in doses of 25 mgm/kg -- 400 mgm in 4 equally divided doses.

After 24 hours of therapy, patient was afebrile and comfortable. T = 99.6. Throat slightly infected. Secretions in ear canal were dry and both tympanic membranes were normal.

Culture on 2/15 showed no coagulase positive staphylococci or other pathogens. On 2/22, follow-up exam showed him to be completely asymptomatic and free of unusual physical findings. The drug was stopped at this time.

Final Diagnosis: tonsillitis and otitis externa due to Staphylococcus aureus.

Result: complete clinical bacteriologic cure after 9 days with ERYTHROCIN therapy.

*Communication to Abbott Laboratories

"clinical response good or excellent"

In one recent study, 18 patients with acute follicular tonsillitis and septic sore throat, were given erythromycin. Infecting organism was *Str. pyogenes*. The investigator stated, "*In all 18, the clinical response could be regarded as either good or excellent.*"[1]

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After a study of 208 patients treated with erythromycin (78), procaine penicillin (78) and a placebo (52), the investigator stated: ". . . *the incidence of toxicity* (compared to procaine penicillin) *was significantly lower in the erythromycin-treated patients.*"[1]

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1. Herrell, W. E., Erythromycin, Antibiotics Monographs, No. 1, p. 29, New York, Medical Encyclopedia, Inc., 1955.
Idem p. 30.

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Why wine in Anorexia?

It has been popularly held that various types of alcoholic beverage are appetite stimulants, but objective laboratory investigations have clearly shown that alcohol itself, under controlled conditions, acts as a depressant to appetite.[1, 2]

Wine, however, the classic beverage of moderation, used as an aperitif, has been found to exert a profound stimulating effect on appetite and on the ability of both normal and anorexic patients to detect faint odors.[3] Goetzl and his co-workers have attributed this effect to such wine components as tannic acid, tartaric acid and acetic acid.[4, 5]

In actual clinical trials, Goetzl has reported the successful use of dry wines in increasing not merely the appetite, but also the food intake of patients suffering from anorexia. In one study on the appetite-stimulating action of wine, the average daily caloric intake in a substantial group of anorexic patients was increased from an average of 773 to 1228 calories.[6]

The above excerpts are taken from the brochure "Uses of Wine in Medical Practice" which describes the results of recent laboratory and clinical research on the medical attributes of wine. Herein are reported the latest findings on the value of wine as a stimulant to flagging appetite, as an aid to digestion, as a vasodilator, as a daytime and night-time sedative.

A copy of the brochure is available to you—at no expense—by writing to: Wine Advisory Board, 717 Market Street, San Francisco, California.



1. Margulies, N.R.; Irvin, D.L., and Goetzl, F.R.: Permanente Found. M. Bull. 8:1 (Jan.) 1950.
2. Irvin, D.L.; Ahokas, A.J., and Goetzl, F.R.: Permanente Found. M. Bull. 8:97 (Oct.) 1950.
3. Goetzl, F.R.: Permanente Found. M. Bull. 8:72 (April) 1950.
4. Irvin, D.L., and Goetzl, F.R.: Permanente Found. M. Bull. 9:119 (Oct.) 1951.
5. Irvin, D.L.; Durra, A., and Goetzl, F.R.: Am. J. Digest. Dis. 20:17 (Jan.) 1953.
6. Goetzl, F.R.: A Note on the Possible Usefulness of Wine in the Management of Anorexia, unpublished.

Bulk makes the "Regularity" Diet work!

Rough or gentle, bulk for the ordinary "regularity" diet comes from the cellulose of foods plus a liberal fluid intake. Where roughage is needed, foods may be eaten raw or cooked. In the bland diet, fruits can be stewed and vegetables puréed.

These are for bulk—

Fruits and vegetables are high in cellulose. And fruits like oranges and apples, root vegetables like beets and carrots also provide pectin which absorbs even more fluid to form especially smooth, soothing bulk.

Whole grains—and the flour or meal made from them—not only contain cellulose, but provide Vitamin B complex as well.

And lots of liquid to make the cellulose bulky—about 8 to 10 glasses a day. Not all of that has to be water—in fact, some of it might be beer.*

Team them up for appetite appeal—

Boiled beets take on new interest when they're served in a sauce of orange juice combined with a little sugar, cornstarch, and butter.

Apples team nicely with dates. Serve them diced with mayonnaise for salad. Or for dessert, stuff cored apples with dates and bake in orange juice.

Currants, raisins, or fresh cranberries make a tasty surprise in oatmeal muffins.

When your patient learns that these bulk-producing foods can be made appetizing, he's likely to make them a part of his regular diet and in doing so help prevent recurrence of his condition.



United States Brewers Foundation

Beer — America's Beverage of Moderation

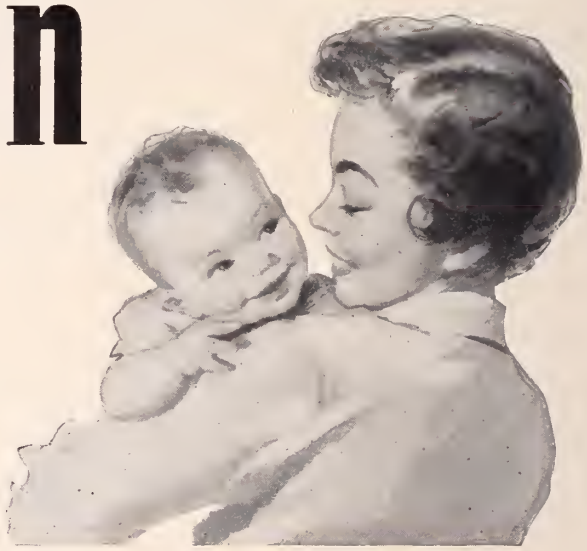
*An 8-oz. gloss of beer supplies obout 1/8 the minimum daily requirement of Niocin os well os smoller omounts of other B Complex vitomins. (Average of American beers)

If you'd like reprints of 12 special diets, please write United States Brewers Foundation, 535 Fifth Avenue, New York 17, N. Y.

pelargon®

for sturdier growth and

Optimal Resistance to Infection



Sturdy growth of the infant and resistance to disease depend largely on nutritional status.

Undernourished or premature infants can be advanced toward optimal resistance by properly improved nutrition. Lowered resistance of a healthy-appearing infant not infrequently is due to subclinical deficiencies; such an infant, too, needs a complete formula.

The completeness of Pelargon's formula—mildly acidified with lactic acid—requires no supplementation and assures optimal nutrition for normal infants, those with digestive difficulties, and premature or marasmic infants.

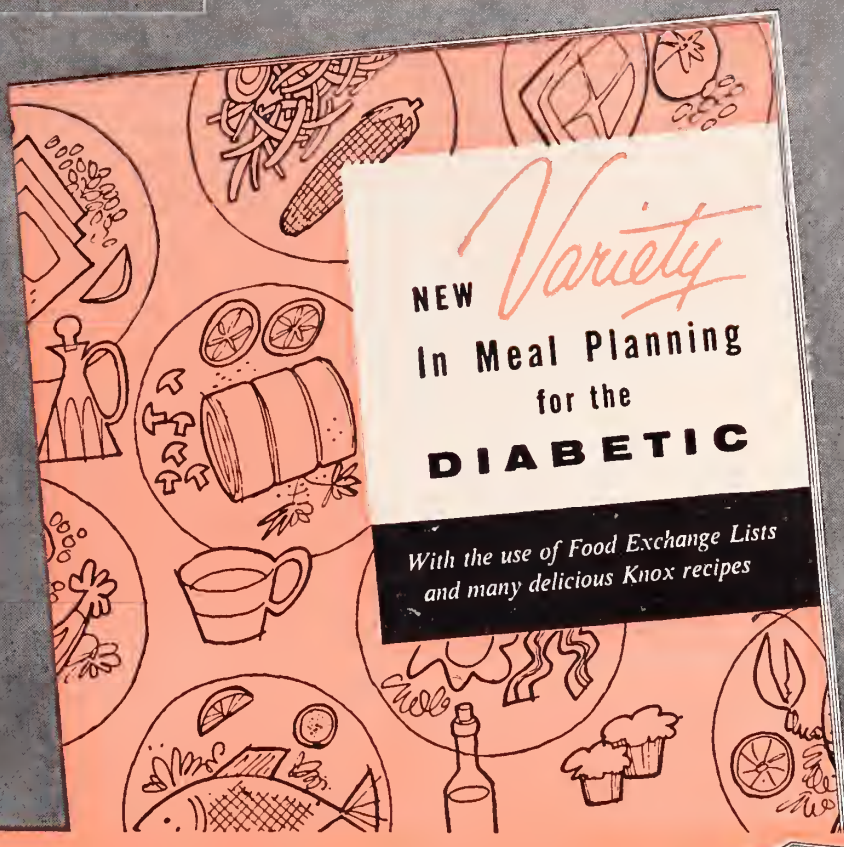


No other infant formula offers more authoritative formulation, better digestibility or greater prophylactic nutrition than Pelargon.

NESTLÉ—*A time-honored name in the field of infant nutrition*

THE NESTLÉ COMPANY, INC.
Professional Products Division
White Plains, New York

KNOX Protein Previews



Newest Knox Brochure Aids Dietary Management of Diabetics



Although more than 50% of diabetics can be managed with proper diet, continued success is dependent upon proper motivation of patients. Determination to abide by dietary restrictions is also important for the diabetic being managed with insulin.

The new Knox booklet "New Variety in Meal Planning" has been prepared to help the physician enlist the patient's enthusiasm for dietary measures and to help maintain this enthusiasm. It explains the importance of diet to the diabetic, shows him how to use the newest dietary advance —Food Exchange Lists[1]—and then describes how to provide tasty variety with 14 pages of tested, diabetic recipes.

"New Variety in Meal Planning" makes no attempt to prescribe a system of treatment. It shows how the recipes described may be used to good advantage in practically any system of diabetic management. If you would like a supply for your practice, use coupon below.

1. Developed by the U. S. Public Health Service assisted by committees of The American Diabetic Association, Inc. and The American Dietetic Association.

Knox Gelatine Company
Professional Service Department SJ-20
Johnstown, N. Y.

Please send me.....copies of the new Knox diabetic brochure describing the use of Food Exchange Lists.

YOUR NAME AND ADDRESS

recognized

as a potent, specific anti-arthritic

established

by over 100 million patient days

substantiated

in more than 700 published reports

BUTAZOLIDIN®

(phenylbutazone GEIGY)

potent, specific anti-arthritic

Based on an impressive background of achievement attained over a period of four years involving both long-term and short-term therapy in all the major forms of arthritis, BUTAZOLIDIN is recognized as one of the most effective anti-arthritic agents currently available.

relieves pain

improves function

resolves inflammation

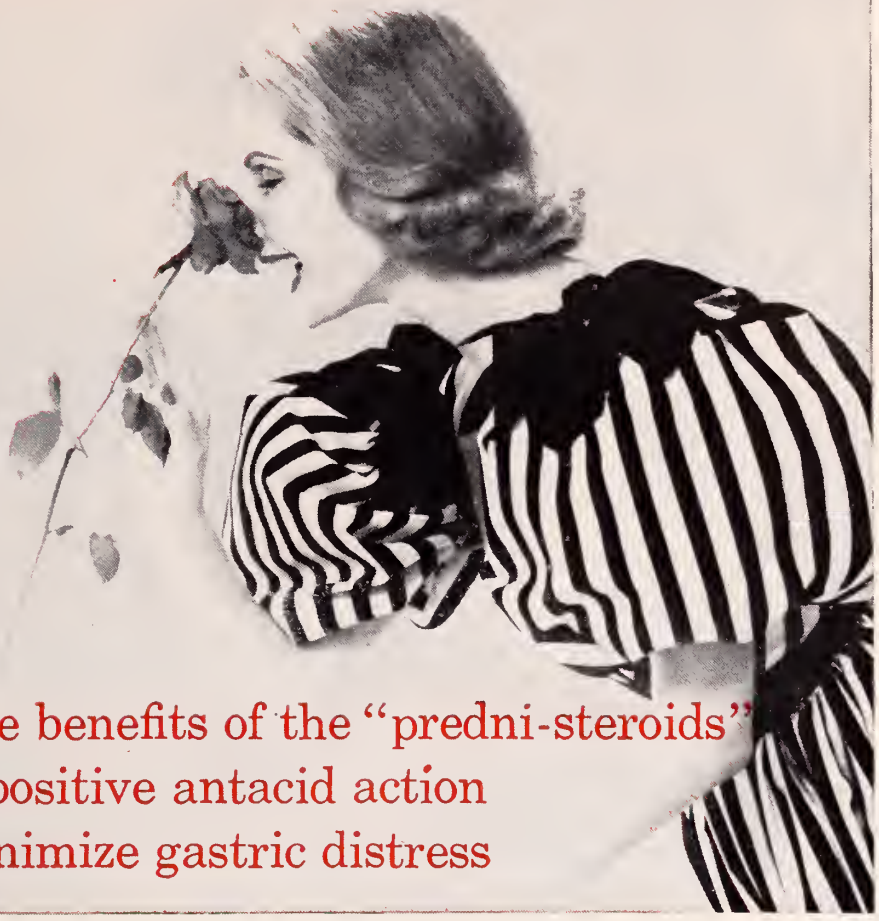
BUTAZOLIDIN being a potent therapeutic agent, physicians unfamiliar with its use are urged to send for literature before prescribing it.

GEIGY

GEIGY PHARMACEUTICALS, Division of Geigy Chemical Corporation, New York 13, N. Y.

72556

in respiratory allergies



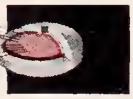
all the benefits of the "predni-steroids"
plus positive antacid action
to minimize gastric distress

ROUTINELY ACHIEVED WITH

'Co-Deltra'
(Prednisone Buffered)



Multiple Compressed Tablets



'Co-Hydeltra'
(Prednisolone Buffered)

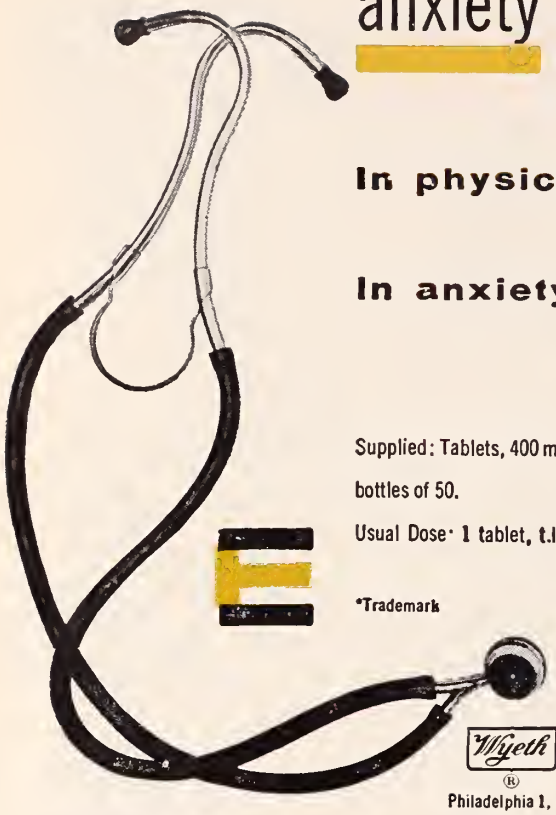
2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

Clinical evidence[1,2,3] indicates that to augment the therapeutic advantages of prednisone and prednisolone, antacids should be *routinely* co-administered to minimize gastric distress.

References: 1. Boland, E. W., *J.A.M.A.* 160:613 (February 25) 1956. 2. Margolis, H. M. *et al.*, *J.A.M.A.* 158:454 (June 11) 1955. 3. Bollet, A. J. *et al.*, *J.A.M.A.* 158:459 (June 11) 1955.

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PHILADELPHIA 1, PA.

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anxiety is part of every illness

In physical sickness...

anxiety

In anxiety...

Supplied: Tablets, 400 mg., bottles of 50.

Usual Dose: 1 tablet, t.i.d.

*Trademark

Equanil*

MEPROBAMATE
(2-methyl-2-*n*-propyl-1,3-propanediol dicarbamate)
Licensed under U.S.Patent No. 2,724,720

Wyeth®
Philadelphia 1, Pa.

anti-anxiety factor with muscle-relaxing action



...IN URINARY COMPLAINTS

- Sterilizes urine in 1 to 3 days
- Relieves burning in minutes
- Effective in 93-98% of cases

sulfid*

The original Azo-Sulfa Formula* • Antibacterial • Analgesic

LOCALIZED MUCOSAL ANALGESIA
Phenylazo-diamino-pyridine HCl—acts solely on the urogenital mucosa; provides prompt relief from burning, pain and frequency.

LOCALIZED ANTIBACTERIAL ACTIVITY
Sulfacetamide—eliminates mixed infections rapidly because of its unusual solubility in acid urine common to bacterial invasion of the urinary tract. No renal damage, concretions or anuria.

...and when Spasmolysis is essential

sulfid* B-A

Antibacterial • Analgesic • Antispasmodic

—the dual activity of SULFID with the well-known antispasmodic effect of natural belladonna alkaloids.

*Introduced—July, 1954

COLUMBUS PHARMACAL COMPANY COLUMBUS 16, OHIO

Lysine plus vitamins

to help children eat more, grow more!



INCREMIN combines the amino acid lysine with vitamins B_1, B_6 and B_{12}—essential nutrients that stimulate appetite, and promote more efficient utilization of protein. For children who are problem eaters, for the underweight, for the generally below-normal child—INCREMIN will usually produce a remarkable and prompt improvement!

Cherry flavor. Can be mixed with milk, milk formula, or other liquid. In 15 cc. polyethylene dropper bottle.

Dosage: 0.5 to 1 cc. (10-20 drops) daily. Each cc. (20 drops) contains:

l-Lysine HCl	300 mg.
Vitamin B_{12}	25 mcgm.
Thiamine HCl (B_1)	10 mg.
Pyridoxine HCl (B_6)	5 mg.
Alcohol	1%

Excellent for the elderly! INCREMIN serves equally well to stimulate lagging appetites in geriatric patients.

New

INCREMIN*

Lysine-Vitamin Drops

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

*REG. U.S. PAT. OFF.

Meat...

Good Nutrition and Endocrine Functioning

Maintenance of homeostasis attuned to health devolves upon good nutrition and normal functioning of the enzyme and endocrine systems.[1,2,3] Conversely, by impairing vital activities of the endocrines, poor nutrition can seriously disturb production of hormones needed to regulate metabolic processes.

Intense and prolonged deficiency in essential nutrients and food energy depresses pituitary, gonadal, and other endocrine activity, leading to subnormal physiologic states. Clinical studies exposing male volunteer subjects to a semistarvation diet produced symptoms resembling those of various endocrine dysfunctions.[4] Since the pituitary and other hormones are protein in nature, it appears logical to assume that protein nutrition plays an important part in their synthesis.[5]

Meat, by supplying valuable amounts of high quality protein, B vitamins, essential minerals, and fat containing unsaturated fatty acids, contributes importantly to any role that good nutrition may play in the maintenance of the endocrines, their functioning, and the production of hormones.

1. Ralli, E. P., and Dumm, M. E.: The Hormonal Control of Metabolism, in Wohl, M. G.: Modern Nutrition in Health and Disease, Philadelphia, Lea and Febiger, 1955, pp. 57-74.
2. McHenry, E. W.: Nutrition and Endocrine Function, Borden's Review of Nutrition Research, *16*:17 (Mar.-Apr.) 1955.
3. Ershoff, B. H.: Conditioning Factors in Nutritional Disease, Physiol. Rev. *28*:107 (Jan.) 1948.
4. Keys, A.; Brozek, J.; Henschel, A.; Mickelsen, O., and Taylor, H. L.: The Biology of Human Starvation, Minneapolis, University of Minnesota Press, 1950.
5. Samuels, L. T.: Progress in Clinical Endocrinology, New York, Grune and Stratton, 1950, p. 509.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago . . . Members Throughout the United States

new!
calmative



nostyn®
2-ethylcrotonylurea, AMES

the power of gentleness
for relief of daily tensions

• moderates anxiety and tension
• avoids depression, drowsiness, motor incoordination

different!

- NOSTYN is a new drug, a *calmative*
  —not a hypnotic-sedative
  —unrelated to any available chemopsychotherapeutic agent
- no evidence of cumulation or habituation
- does not cause diarrhea or gastric hyperacidity
- unusually wide margin of safety—no significant side effects

dosage: 150-300 mg. three or four times daily.

supplied: 300 mg. scored tablets, bottles of 48.

AMES COMPANY, INC • ELKHART, INDIANA

17656

MONODRAL® WITH MEBARAL®



ANTICHOLINERGIC • SEDATIVE

in peptic ulcer management

- relieves pain promptly
- reduces tension safely
- tranquilizes without dulling
- well tolerated
- promotes healing
- maintains anacidity for hours
- controls hyperactivity of upper gastro-intestinal tract

MONODRAL with MEBARAL—the "psychovisceral stabilizer"—provides for patients with ulcer and gastro-intestinal spasm an effective barrier against the impact of environmental stimuli . . . controls gastric hypersecretion and hypermotility for three and one half to five hours.*

EACH TABLET CONTAINS:
MONODRAL bromide..... 5 mg.
MEBARAL.....32 mg.

DOSAGE: 1 or 2 tablets three or four times daily.
Available on prescription only.
Bottles of 100 tablets.

Winthrop Laboratories New York 18, N. Y.

Monodral (brand of penthienate) and Mebaral (brand of mephobarbital), trademarks reg. U. S. Pat. Off.
*References and clinical trial supplies available on request.

ANNUAL CLINICAL CONFERENCE

CHICAGO MEDICAL SOCIETY

MARCH 5, 6, 7 AND 8, 1957

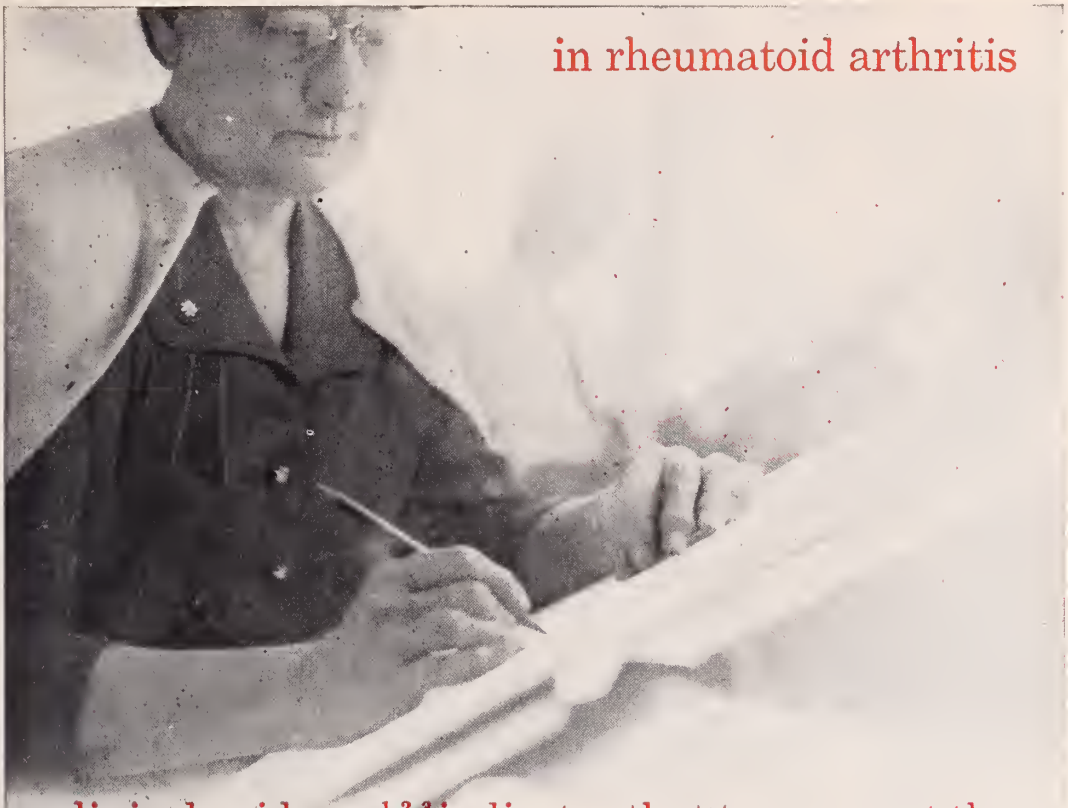
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Scientific Exhibits worthy of real study and helpful and time-saving Technical Exhibits

The Chicago Medical Society Annual Clinical Conference should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

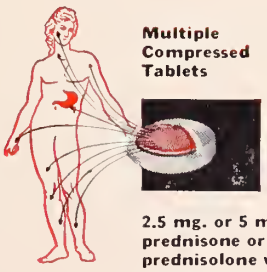


in rheumatoid arthritis

clinical evidence[1,2,3] indicates that to augment the therapeutic advantages of the "predni-steroids" antacids should be routinely co-administered to minimize gastric distress

ROUTINE CO-ADMINISTRATION MEANS

'Co-Hydeltra'
(Prednisolone Buffered)



Multiple Compressed Tablets

2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

'Co-Deltra'
(Prednisone Buffered)

All the benefits of the "predni-steroids" plus positive antacid action to minimize gastric distress.

References: 1. Boland, E. W., *J.A.M.A.* 160:613 (February 25) 1956. 2. Margolis, H. M. *et al.*, *J.A.M.A.* 158:454 (June 11) 1955. 3. Bollet, A. J. *et al.*, *J.A.M.A.* 158:459 (June 11) 1955.

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KARO® SYRUP . . . meets the need for a highly potent source of infant carbohydrate

The need for carbohydrate, particularly during the rapid growth period of early infancy, is well recognized. One highly effective means of assuring adequate carbohydrate is by the addition of Karo syrup to the milk formula.

Karo—a balanced mixture of dextrins, maltose and dextrose—enables the feeding of larger amounts of total carbohydrate than is possible with a single sugar such as lactose or sucrose. Karo is double rich in calories and, more importantly, it is easily digested, completely utilized and well-tolerated; even by prematures and newborns.

From the standpoint of the physician, Karo permits easy adjustment of formula and safe transition from liquid to solid food. Mothers appreciate the ease of making formulas with Karo, plus its ready availability and economy. Light or dark Karo syrup may be used interchangeably since each yields 120 calories per ounce (2 tablespoons).



1906 • **50th ANNIVERSARY** • 1956
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Journal Report:

Hypertensive symptoms relieved in 96% of patients

"Comparison of pentolinium [ANSOLYSEN] with other preparations in 25 patients with severe essential hypertension, for whom all other methods of management had failed, showed that pentolinium is the most effective of available agents in reducing dangerously high blood pressure to the desired levels, and in modifying some of the complications of hypertension, as cardiac decompensation, cardiomegaly and retinopathy. . . .

"In 96 per cent (24 patients) clinical symptoms were relieved and the blood pressure maintained at comfortable levels. . . ."[1]

ANSOLYSEN®

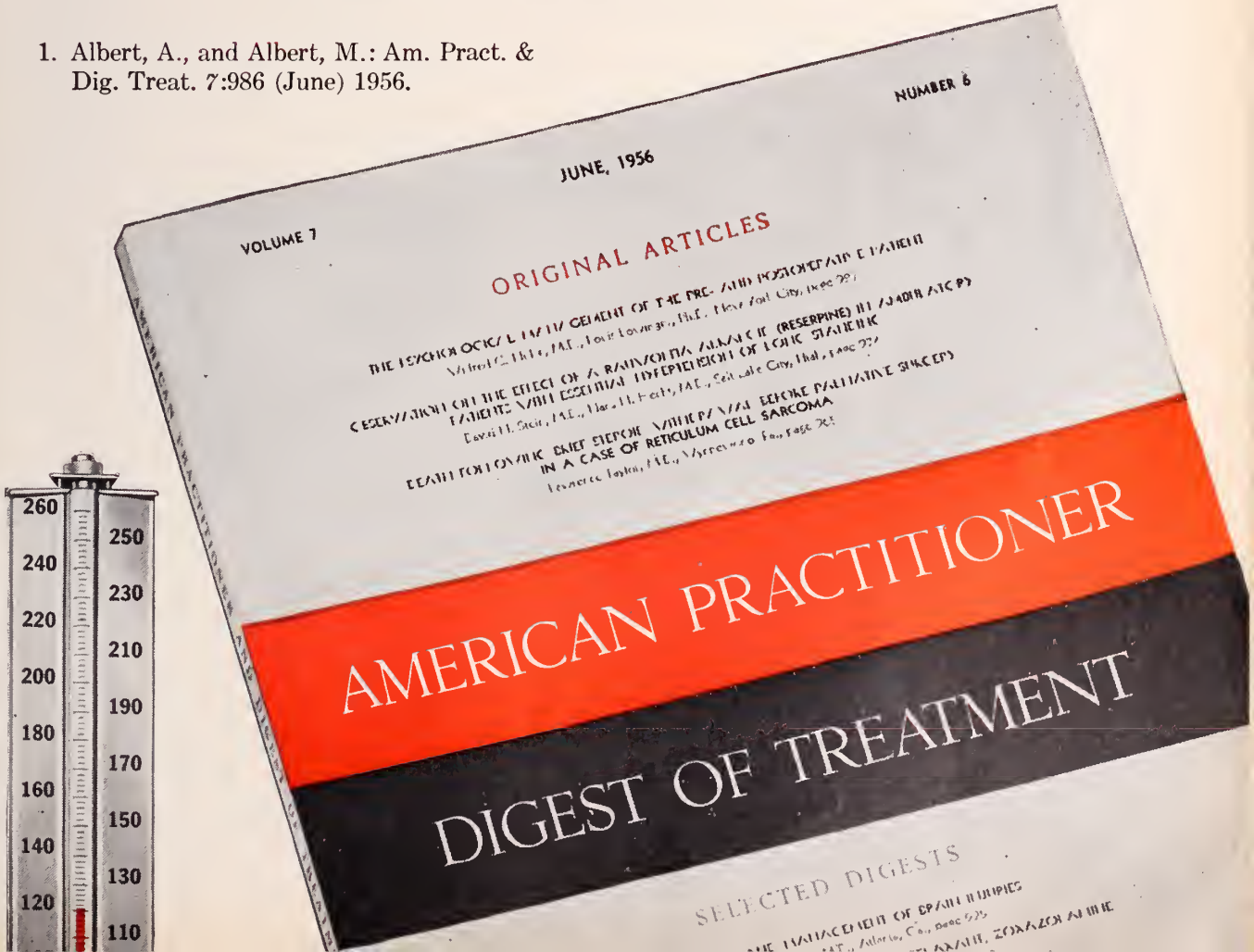
TARTRATE

Pentolinium Tartrate

Lowers Blood Pressure

Wyeth®
Philadelphia 1, Pa.

1. Albert, A., and Albert, M.: Am. Pract. & Dig. Treat. 7:986 (June) 1956.



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ATARAXOID is a unique, new combination of STERANE and ATARAX, which now permits simultaneous symptomatic control and reduction of attendant anxiety and apprehension in rheumatoid arthritis and other indications.

The added tranquilizer control, desirably easing mental stress, also directly assists clinical progress. It minimizes the chance of exacerbation related to emotional strain and facilitates patient confidence and cooperation in the therapeutic program toward maximum rehabilitation.

ATARAXOID exerts the anti-rheumatic, anti-inflammatory activity of STERANE distinctly superior to previous steroids, effective in radically reduced dosage, and with minimal disturbance of electrolyte and fluid metabolism.

The ataractic effect is a central neuro-relaxing action – the result of a marked cerebral specificity – free of mental fogging and devoid of any major complications: no liver, blood or brain damage. This peace-of-mind component is also used in the lowest dosage range.

Supplied: Each green, scored, ATARAXOID oral tablet contains 5 mg. prednisolone (STERANE) and 10 mg. hydroxyzine hydrochloride (ATARAX). Bottles of 30 and 100.



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Division, Chas. Pfizer & Co., Inc.
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the first and only ataraxic-corticoid

araxoid*

prednisolone and hydroxyzine

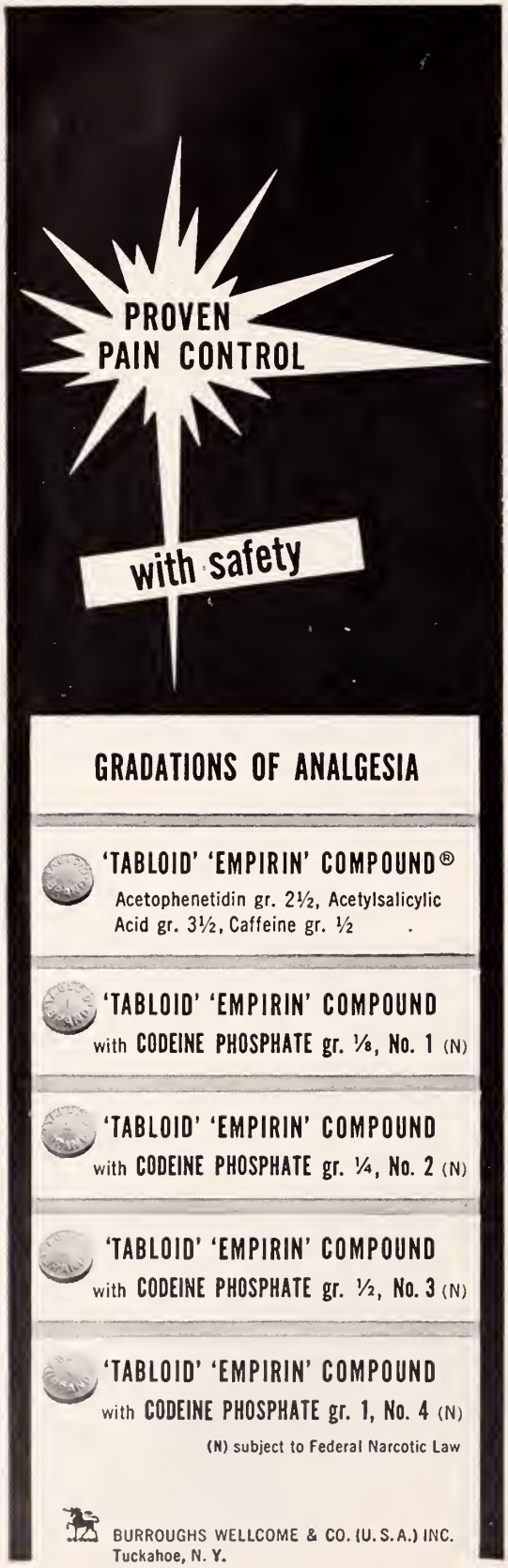
Pfizer

combining the newest, safest tranquilizer, ATARAX® + the newest, most effective steroid, STERANE® (prednisolone)

simultaneously controls the symptoms and the apprehension

In Rheumatoid Arthritis, other collagen diseases, bronchial asthma and inflammatory dermatoses

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EVERY WOMAN
WHO SUFFERS
IN THE
MENOPAUSE
DESERVES
"PREMARIN"

widely used
natural, oral
estrogen

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INFECTIOUS DISEASES IN PEDIATRICS
Dr. Ralph V. Platou, Chairman
February 4 - 9, 1957

A distinguished guest speaker, Dr. M. H. D. Smith, and the availability of a fine selection of clinical material insure the success of this program for pediatricians. In addition to formal lectures informal discussions of cases and panels on particular subjects each afternoon will be emphasized. Ample opportunity will be available for questions.

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Dr. Jack K. Wickstrom and
Dr. Daniel C. Riordan, Chairmen
March 21 - 23, 1957

This timely course covering all aspects of surgery of the hand is presented again by popular demand. Initial discussions of fundamental anatomy and function will be followed by sessions on the management of acute trauma and surgical diseases of the hand. All phases of reconstruction of skin, nerve, bone and tendon will be covered by movies, colored slides and patient demonstrations.

For additional information write:
Director of Graduate Medicine
Tulane University School of Medicine
1430 Tulane Avenue
New Orleans 12, Louisiana

"Patients without primary renal disease, but with albuminuria and high nonprotein nitrogen due to congestive circulatory changes, can be adequately and safely treated with Neohydrin for long periods of time."*

*Griffith, G. C.; Dimitroff, S. P., and Thorner, M. C.: Ann. Int. Med. 45:7, 1956.

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with sedation

GRADATIONS OF ANALGESIA
with light sedation

'EMPIRAL'®

Phenobarbital	gr. ¼
Acetophenetidin	gr. 2½
Acetylsalicylic Acid	gr. 3½

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Codeine Phosphate	gr. ¼
Phenobarbital	gr. ¼
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Acetylsalicylic Acid	gr. 3½

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Codeine Phosphate	gr. ½
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(N) subject to Federal Narcotic Law

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, N. Y.

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For Pain-Fre

of everyda

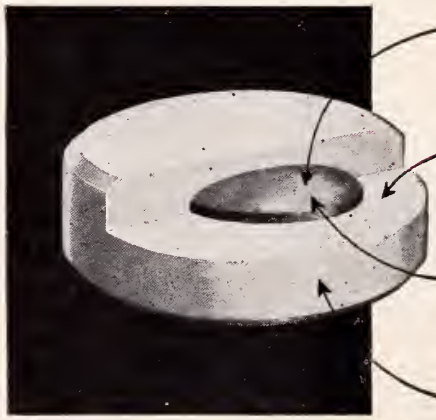
In "Rheumatism"

Multip

TEMP

combine:

THE PROPER FORMULA
PROPERLY FORMULATED



Physical separation of the steroid component from the aluminum hydroxide as provided by the Multiple Compressed Tablet construction assures full potency and stability of prednisolone.

PREDNISOLONE (1 mg

+

ASPIRIN (0.3 Gm.).....

+

ASCORBIC ACID (50 m

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ANTACID (0.2 Gm.).....

* Early rheumatoid arthritis
Rheumatoid spondylitis
Osteoarthritis
Still's disease
Psoriatic arthritis
Bursitis
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OGEN®

. . . . . for anti-inflammatory, anti-rheumatic benefits *at effective low dosage.*

. . . . . for analgesia plus additional anti-rheumatic activity.

. . . . . for anti-stress support that guards against adrenal ascorbic acid depletion.
(Ascorbic Acid present as 60 mg. Sodium Ascorbate.)

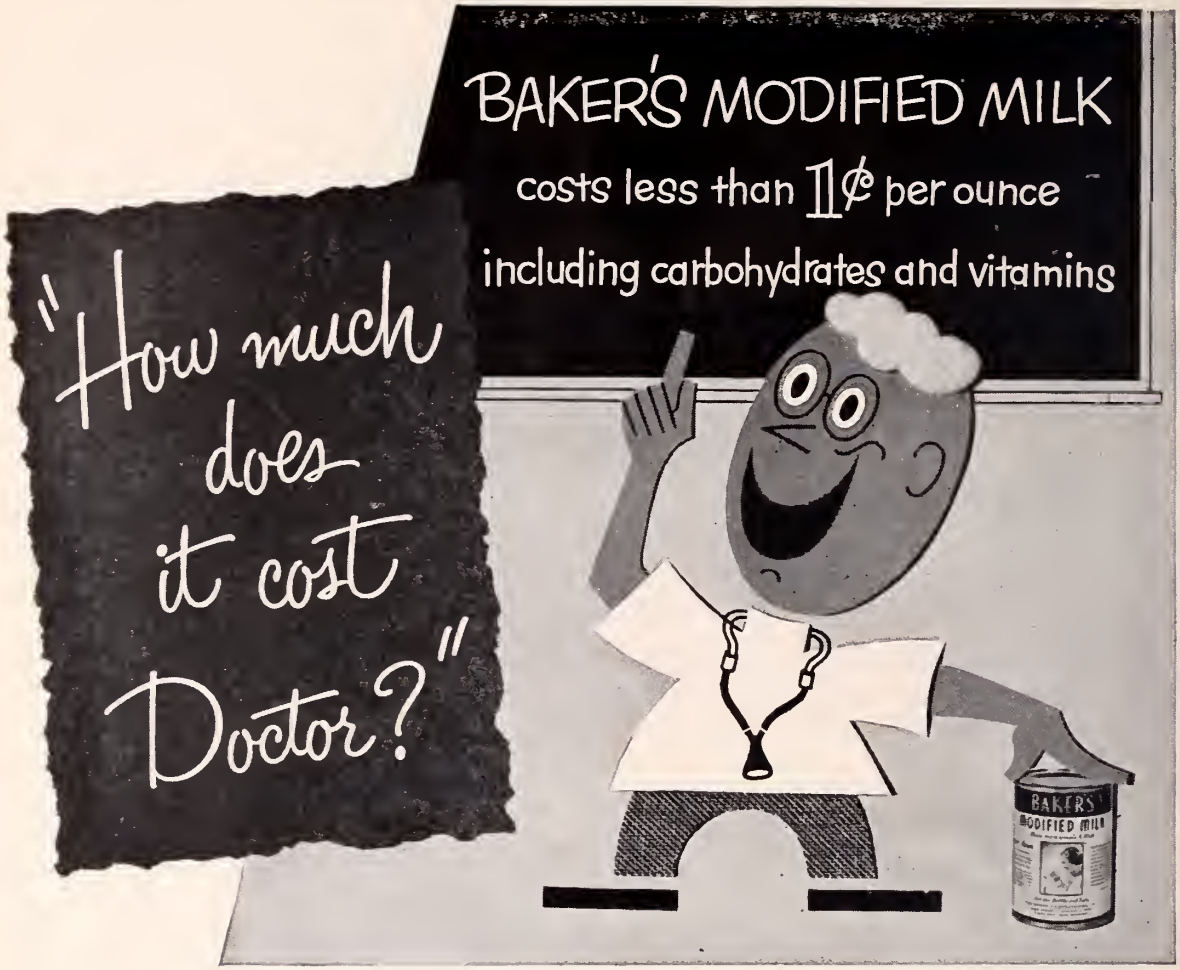
. . . . . dried aluminum hydroxide gel minimizes the possibility of gastric distress.

DOSAGE: *1-4 TEMPOGEN Tablets t.i.d. or q.i.d. (TEMPOGEN Forte, 1 or 2 tablets t.i.d. or q.i.d.) for one or two weeks. Then lower by 1 tablet every four or five days to maintenance level.*

SUPPLIED: *TEMPOGEN and TEMPOGEN Forte —in bottles of 100 Multiple Compressed Tablets. (TEMPOGEN Forte provides 2 mg. of prednisolone.)*

MSD

MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PA.



You have an economical answer
BAKER'S MODIFIED MILK*

When a mother asks about the cost of a formula for her baby, your answer can truthfully be "Baker's is economical."

Baker's is a complete food containing added carbohydrate, and adequate amounts of all known essential vitamins and minerals. Because Baker's is sold at an extremely low price, one ounce of formula costs less than a penny—about $1.50 per week for most infants.

Prescribe Baker's Modified Milk in the hospital and thus provide mothers with an economical, complete infant formula.

*Made exclusively from Grade A Milk (U. S. Public Health Service Milk Code)

THE BAKER LABORATORIES, INC.

Milk Products Exclusively for the Medical Profession

Main Office: Cleveland 3, Ohio • *Plant:* East Troy, Wisconsin

A New Diagnostic And Prognostic Aid--Serum Transaminase

1. **What is Transaminase?**
   It is a specific tissue enzyme concerned with the transfer of alpha aminonitrogen of aspiratic acid to alpha ketoglutaric acid resulting in a synthesis of a new amino acid, glutamic acid and a new alpha keto acid, oxaloacetic acid.
2. **What is the Normal Value?**
   10-40 units (Average 22.1 units ±6.8)
3. **When Should The Test Be Ordered?**
   Test should be ordered preferably on the first six hours after the onset of symptoms whereby a first sample of blood is taken as a base line normal.
   The second sample of blood should be taken within 12-36 hours after the symptoms. Serial determinations, at least once a day for the first five days is deemed ideal to detect the fleeting maximum rise.
4. **In What Clinical Conditions it is Found To Be Increased?**
   Myocardial Infarction
   Liver Diseases (higher levels which persist longer)
   - Infectious or homologous serum hepatitis
   - Portal or biliary cirrhosis
   - Metastatic carcinoma to the liver
   - Carbon tetrachlorida poisoning

   Pulmonary infarcts
   Acute pancreatitis
   Skeletal tissue damage
   Myositis
   Other conditions involving tissue necrosis
5. **What is the Highest Value Ever Reported in Literature?**
   22,500 units—Homologous serum hepatitis
6. **How To Interpret The Test:**
   Serum level starts to rise in about four to six hours following onset of symptoms.
   Maximum level occurs within thirty-six hours after onset of symptoms.
   Level begins to decrease by third day.
   Average peak level in myocardial infarction: 164 Units (27 hours after onset of pain)
   Poor prognosis indicated by elevation over 200 units.
7. **Clinical Considerations:**
   Transaminase activity is within normal limits in infectious, degenerative neoplastic, toxic, reactive and metabolic diseases when tissue necrosis does not take place.
   Transaminase activity rises within twelve hours and persists as long as six days after acute transmural infarction.
   Height and duration of elevation of transminase activity are roughly proportional to the size of infarction.
   Angina pectoris or coronary insufficiency does not increase transaminase activity if heart muscles are undamaged.
   Increase in transaminase activity in toxic, infectious and homologous serum hepatitis are so marked in the early stages of cell damage as to be almost diagnostic.
   Elevation of transaminase level in obstructive jaundice falls promptly after surgery.
   An increase level of transaminase in liver disease appear to indicate active liver cell destruction.
   Newer work indicates a substantial rise in spinal fluid transaminase in cerebral infarcts (encephalomalacia).
8. **Where is it Normally Found?**
   It is widely distributed in animal tissue normally in concentration of the following decreasing order;
   1. heart muscle
   2. skeletal muscle
   3. brain
   4. liver
   5. kidney
9. **What are the Properties of Transaminase?**
   Stable at room temperature for at least three days and at refrigerator temperature (0-5° C) for at least three weeks.
   Unaffected by freezing and lyphilization.
   Serum and plasma levels are identical.
   Normal ranges are reproducible from day to day in normal individuals and not affected by meals.
   Activity is destroyed by heating to 100° C.
   Hemolysis tends to increase activity (don't hemolyze blood sample).

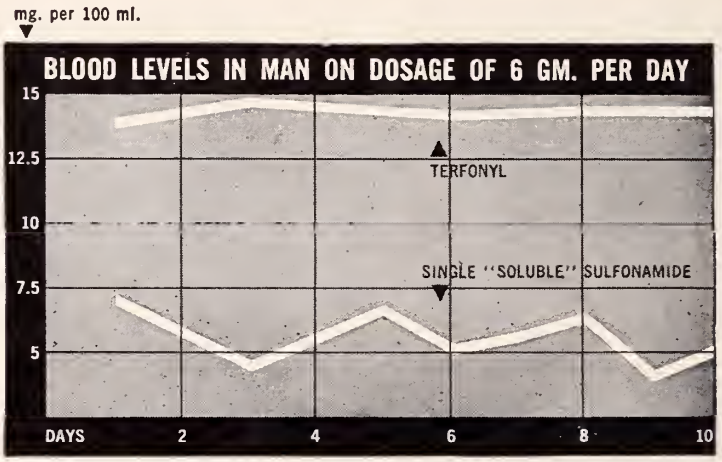
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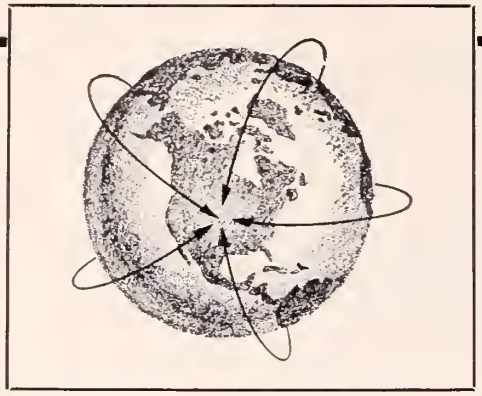
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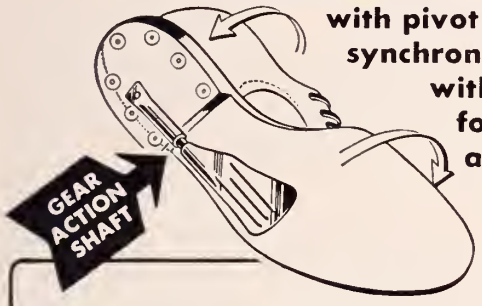
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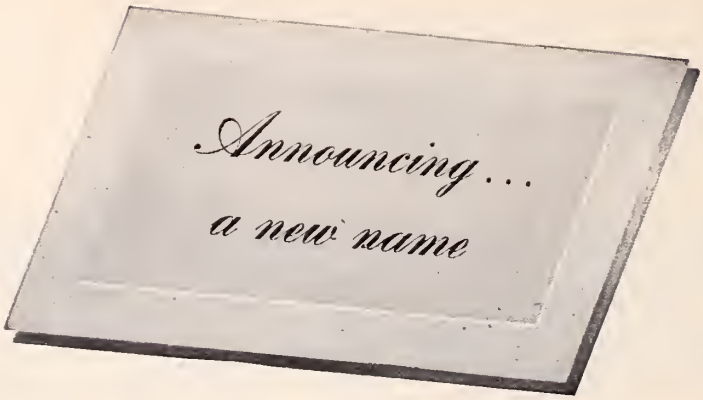
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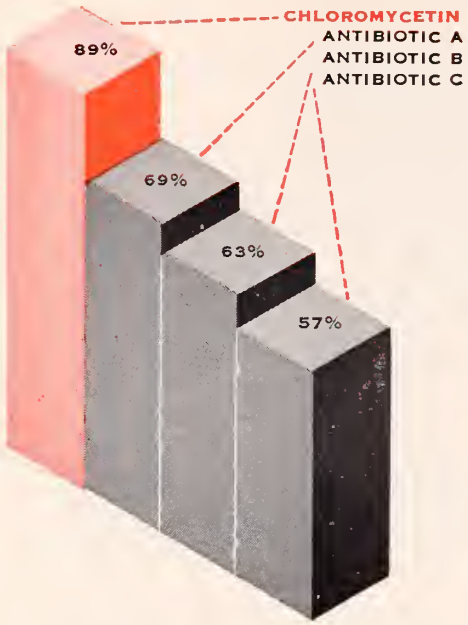
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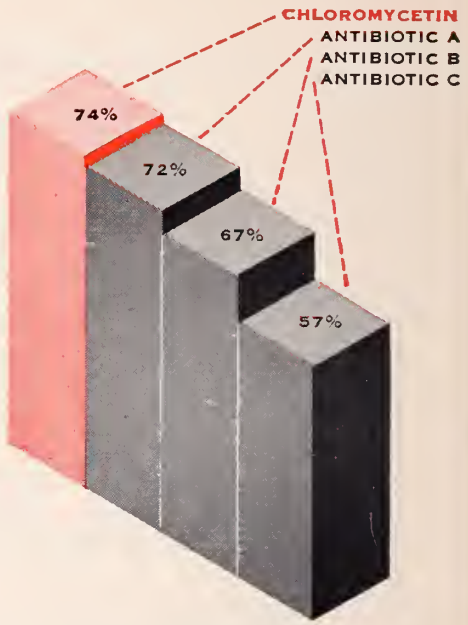
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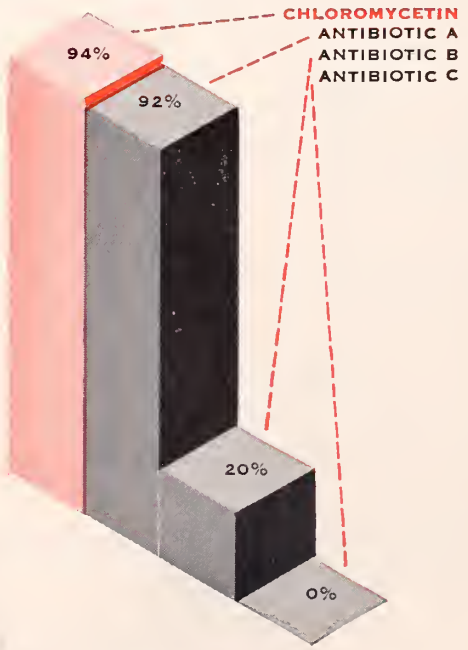
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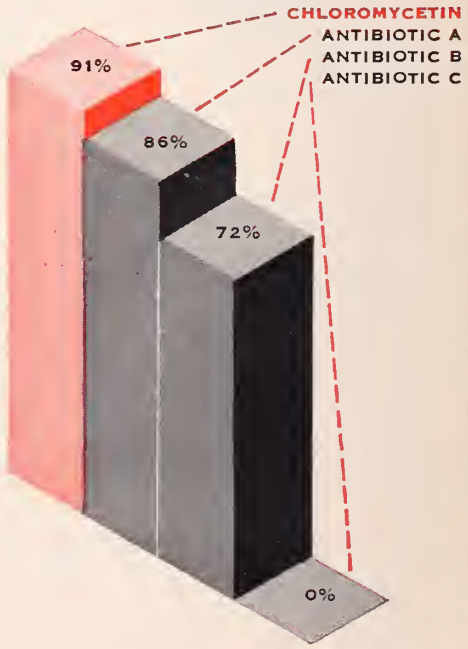
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This graph is adapted from Altemeier, Culbertson, Sherman, Cole, Elstun, & Fultz.[1]

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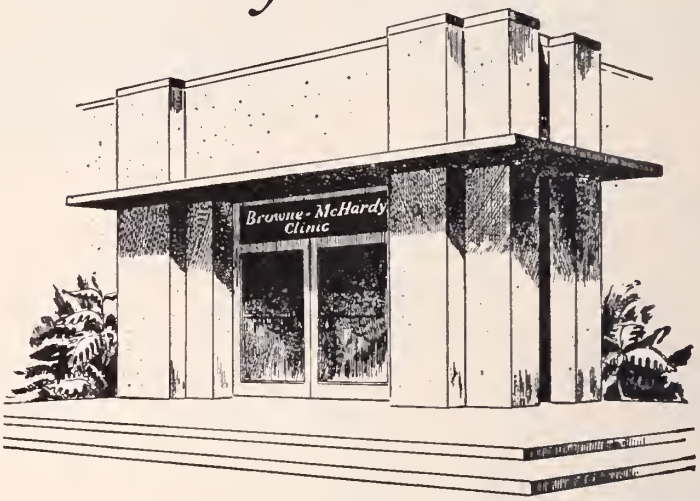
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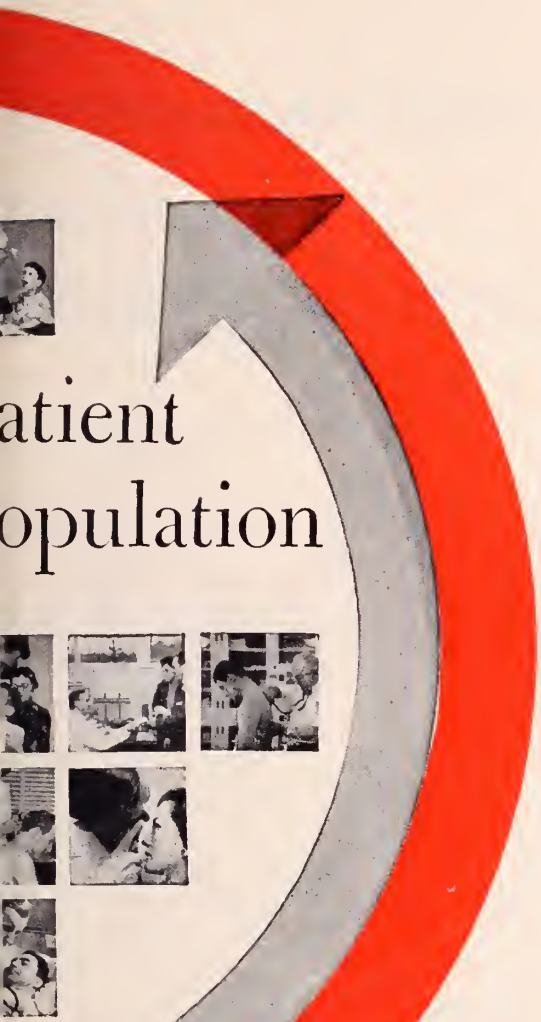
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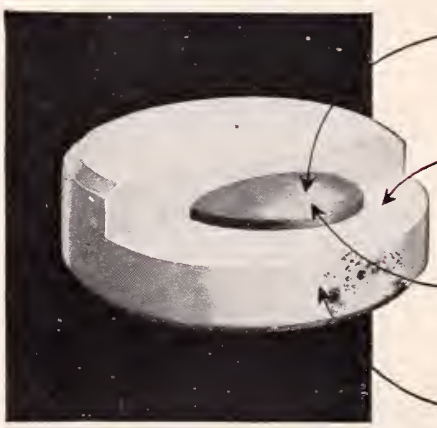
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THE GASTRIC ULCER PROBLEM *

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NASHVILLE, TENNESSEE

The treatment of gastric ulcer continues to be a source of controversy between the proponents of the time-honored methods of medical management and the advocates of prompt surgical exploration of all ulcerating lesions of the stomach. Strode [1] has recently stimulated our interest in this controversy by his aggressive stand in favor of prompt surgical intervention without preliminary medical trial.

At Vanderbilt University Hospital during the last fifteen or more years the treatment of gastric ulcer has theoretically followed the generally accepted pattern of a trial of medical management consisting of diet, antacids and antispasmodics for a period of six to eight weeks with surgical intervention if the ulcer fails to heal as evidenced by relief of symptoms and findings on repeated roentgen examinations. In order to assess the efficacy of this plan a study has been made of 186 patients with gastric ulcer seen at Vanderbilt University Hospital during the fifteen year period from 1940 through 1954. The statistical data from this study has been arranged in three categories for purposes of comparison: (1) the malignant ulcer group, (2) the benign gastric ulcers treated surgically and (3) the medically managed gastric ulcers.

MALIGNANT ULCERS

Twenty-two patients, or 11.8 per cent of the group, proved to have malignant ulcers. Table 1 shows that there were 21 males and one colored female. Ninety-five per cent of the cases came to operation and were proven histologically while one case was treated entirely by medical management and carcinoma was discovered at autopsy. This was a case of a 72 year old white male whose ulcer was demonstrated on the lesser curvature of the stomach 3 cm. proximal to the pylorus by G.I. series. Within six days of medical regimen the ulcer appeared to be healed by x-ray examination. The patient was entirely asymptomatic after two weeks of treatment and remained so for the next eight months. Ten months after his ulcer was diagnosed he died with carcinoma of the stomach.

TABLE 1
ANALYSIS OF 22 MALIGNANT ULCERS

Malignant ulcers in series—11.8%		
Operated	21	(95%)
Treated medically as benign	1	
Males	21	
White	17	
Negro	4	
Females	1	

The age incidence of malignant ulcers ranged from 35 years to 72 years. The

* Presented at the Seventy-sixth Annual Meeting of the Louisiana State Medical Society, Alexandria, April 24, 1956.

† From the Department of Surgery, Vanderbilt University School of Medicine and the Surgical Service, Vanderbilt University Hospital.

majority were between 50 and 70 years old, but 6 patients or 27 per cent were under 50 years of age. There was only one female in this group of malignant ulcers although there was a total of 42 women in the entire series.

Table 2 shows the types of operation

TABLE 2
ANALYSIS OF 21 OPERATED MALIGNANT ULCERS: TYPE OF OPERATION

	No. Cases
Total gastrectomy	4
Subtotal gastrectomy	11
Exploratory laparotomy and biopsy	5
Gastroenterostomy	1
Resectable at time of operation—71%	

used for malignant ulcers. Almost one-third of the cases were not resectable at the time of operation.

In Table 3 is seen the length of medical

TABLE 3
ANALYSIS OF 21 OPERATED MALIGNANT ULCERS: LENGTH OF MEDICAL TREATMENT PRIOR TO OPERATION

Duration	No. Cases	
1 month or less	7	
1 to 2 months	1	38%
2 to 4 months	3	
4 to 6 months	0	
6 to 12 months	5	
1 to 2 years	3	
2 to 5 years	1	
19 years	1	
	21	

management preceding operation. Of interest is the fact that only 38 per cent of these patients were operated upon within two months of the time that a gastric ulcer was definitely diagnosed. One patient was followed repeatedly with roentgenologic examinations for one year before a prepyloric carcinoma was found at operation. In the three and one-half years since operation he has done very well and shows no evidence of recurrence. The lesion was a very early adenocarcinoma arising in an old chronic peptic ulcer.

The patient who was followed for nineteen years had a lesser curvature ulcer treated by diet with relief of symptoms for eighteen years. After development of recurrent symptoms, he was again referred to Vanderbilt University Hospital. A biopsy of the recurrent ulcer by gastroscopy revealed carcinoma. Total gastrectomy was performed, but the patient died three weeks after operation from a disruption of the esophagojejunal anastomosis. There was no evidence of metastatic spread at autopsy. This is the only operative death in the malignant ulcer series.

All 5 patients who were operated upon twelve months or more after diagnosis of gastric ulcer had been followed clinically and radiologically with medical therapy for their ulcers. Two were finally operated upon because of radiological recurrence, 2 because of increasing pain, and 1 because of symptoms of obstruction.

In Table 4 are mortality statistics in

TABLE 4
ANALYSIS OF 21 OPERATED MALIGNANT ULCERS: MORTALITY STATISTICS

Total operative mortality	1 *

* Disruption of anastomotic site after total gastrectomy.

the malignant ulcer group. As mentioned above there was only one operative death.

Table 5 shows the survival period in the

TABLE 5
ANALYSIS OF SURVIVAL PERIOD IN 15 RESECTABLE CASES

	No. Cases	%
2 to 5 years	3	20
More than 5 years*	4	26.6
Dead in 1 year or less	5	
Dead in 1 to 2 years	3	

* 1 died of metastases 8 years postoperatively; rest are alive 6 years, 7 years and 11 years after operation.

15 resectable cases. One-fourth survived more than five years. One patient is living and well eleven years after resection, one seven years, and one six years. One patient was reported to have had a benign ulcer on microscopic examination but died eight years later with liver metastases and carcinoma of the stomach. At the time of autopsy a review of the original sections showed the surgical pathological diagnosis to have been in error as carcinoma was indeed present.

BENIGN GASTRIC ULCERS TREATED SURGICALLY

There were 164 benign ulcers. These are subdivided into 92 cases treated medically and proved benign only by the patient's clinical course and roentgen findings, and 72 cases treated by definitive

gastric surgery. Seventy of these 72 cases had excision of the ulcer and pathological examination to prove the lesion benign. One patient had a gastrojejunostomy without resection. His operation was done in 1943 because of obstructive symptoms. Twelve years later he is alive and well. Another patient had a benign ulcer located high on the lesser curvature which was treated by gastroenterostomy and vagotomy.

Table 6 shows the sex ratio breakdown in this group. There were 54 males as compared to 18 females.

TABLE 6
ANALYSIS OF 72 BENIGN OPERATED GASTRIC ULCERS

Males		54
White	48	
Negro	6	
Females		18
White	17	
Negro	1	

The age range in the group is shown in Table 7. The majority of patients were in the fifth through the seventh decades.

TABLE 7
ANALYSIS OF 72 BENIGN OPERATED GASTRIC ULCERS: AGE AND SEX

Age Years	No. Cases Male	Female
30 to 39	5	1
40 to 49	14	5
50 to 59	17	5
60 to 69	15	6
70 to 79	3	1
	54	18

Table 8 lists the indications for operation. Almost one-third of the patients were operated on because of a strong suspicion of malignancy. One-third of the cases were operated upon because of intractability, hemorrhage, or obstruction.

TABLE 8
ANALYSIS OF 72 BENIGN OPERATED GASTRIC ULCERS: INDICATIONS FOR OPERATION

	No. Cases	
Diagnosis of carcinoma	8	
Diagnosis of probable carcinoma	15	(31.9%)
Recurrence	4	(5.5%)
Obstruction	3	
Hemorrhage	6	(33.3%)
Intractability	15	
Failure to heal	15	(20.8%)
Perforation	2	
Resection planned D. U. because intractability—found G.U. also	4	

Table 9 lists the types of operations. The Billroth II anastomosis was done routinely on all staff patients during the first ten years of this study.

TABLE 9
ANALYSIS OF TYPES OF OPERATION FOR 72 BENIGN ULCERS

	No. Cases
Billroth II	38
Hofmeister	18
Polya	9
Billroth I	2
Vagotomy and Billroth I	1
Vagotomy and Polya	1
Billroth II and vagotomy	1
Gastrojejunostomy	1
Gastrojejunostomy and vagotomy	1

The mortality figures are shown in Table 10. Two of the three deaths are considered to be the direct result of the operation. The operative mortality rate is therefore 2.8 per cent. One other patient died while in the hospital of cardiac failure.

TABLE 10
ANALYSIS OF 72 DEFINITIVE OPERATIONS: MORTALITY STATISTICS

Mortality	Cause of Death
1	Peritonitis, leak gastrojejunostomy suture line, 12 days postoperatively, 69 year old white male.
1	Multiple lung abcesses, generalized peritonitis, 25 days postoperatively, 52 year old female.
1	Cardiac failure, 24 days postoperatively.
3 = 4.2%—Hospital deaths	
Operative mortality = 2.8%	

In Table 11 may be seen the length of

TABLE 11
ANALYSIS OF 72 OPERATED BENIGN ULCERS: LENGTH OF MEDICAL TREATMENT PRIOR TO OPERATION

Duration	No. Cases	
1 month or less	52	
1 to 2 months	5	79.2%
2 to 4 months	1	
4 to 6 months	2	
6 to 12 months	3	
1 to 2 years	5	
2 to 4 years	3	
4 to 6 years	1	
	72	

medical management prior to operation. Fifty-seven patients or 79.2 per cent were operated upon within two months or less after the diagnosis of gastric ulcer was made.

Table 12 analyzes the follow-up of the surgically treated benign ulcer cases and classifies the results in relation to length of follow-up.

Two proven cases of recurrent ulceration have resulted. One of these had marginal recurrence within four months of operation. This patient did fairly well on medical regimen for a year but recently his persistent marginal ulcer was successfully resected. The other patient developed a gastrojejunocolic fistula two years after partial gastrectomy. Following surgical correction of this he has done very well for the past seven years. The third poor result was in a patient who had hematemesis two years after operation at which time a vagotomy was done for suspected marginal ulcer. Six years later hematemesis again occurred and a higher gastric resection was performed. No recurrent ulceration was found, and pathological examination reported chronic inflammation of the stomach. His subsequent course has been satisfactory.

Three patients have died of heart disease from sixteen months to six years after their operation. This can have no relation to their classification of postoperative status.

MEDICALLY MANAGED GASTRIC ULCERS

The group of medically managed gastric ulcers totals 92 cases. One patient who was treated medically and proved subsequently to have carcinoma at death has been included in Table 1 and is not included in these 92 cases.

Table 13 shows the sex ratio in this

TABLE 13
ANALYSIS OF 92 BENIGN GASTRIC ULCERS WITH MEDICAL MANAGEMENT

Males		69
	White	64
	Negro	5
Females		23
	White	17
	Negro	6

group. There was a ratio of 3:1 for males to females.

In Table 14 is seen the age range for

TABLE 14
ANALYSIS OF 92 BENIGN GASTRIC ULCERS WITH MEDICAL MANAGEMENT

Ages - Years	Male	Female
10 - 19	1	0
20 - 29	5	0
30 - 39	8	5
40 - 49	7	5
50 - 59	19	2
60 - 69	23	4
70 - 79	5	6
80 - 89	1	1
	69	23

this group. There is a wide range but the majority fall in the fourth through the seventh decades.

Table 15 analyzes the follow-up in this group. Fourteen patients have had no follow-up and 36 have been followed less than two years. Ten of these have died of known causes: two of heart disease, and one each of trauma, hemorrhage from gastric ulcer, pulmonary edema, bronchogenic carcinoma, ruptured appendix, Addison's disease, amebic abscess of the liver, and retroperitoneal tumor.

TABLE 12
ANALYSIS OF 72 OPERATED BENIGN ULCERS: FOLLOW UP OF CASES

	No. Cases	Results Poor	Fair	Good
Died in hospital	3	—	—	—
No follow-up	3	—	—	—
Less than 1 year postoperatively	16	1		15
1 to 2 years postoperatively	13			13
2 to 3 years postoperatively	8			8
3 to 4 years postoperatively	5			5
4 to 5 years postoperatively	6			6
5 to 10 years postoperatively	14	2	3	9
10 to 12 years postoperatively	4			4

TABLE 15
ANALYSIS OF 92 CASES DIAGNOSED AS BENIGN AND TREATED MEDICALLY

	No. Cases	Deaths Known	Deaths Unknown
No follow-up	14		
Less than 2 yrs.	36	10	
2 to 5 yrs.	19	3	
5 to 10 yrs.	16	2	1*
10 yrs. or more	7	1	
Total	92	16	1

* Died age 62 yrs.

Of the patients followed two to five years three died of known causes: two of heart disease and one of glomerulonephritis. In the group followed five to ten years, three have died: one of heart disease, one of carcinoma of the breast, and one at age 62 years of an unknown cause. One patient died of heart disease in the group of seven that was followed over ten years.

The incidence of recurrence in each group with a follow-up period is shown in Table 16. Since 5 of the 15 recurrences were not demonstrated by x-ray, the recurrence rate is shown in those cases without associated duodenal ulcer so that the recurrence cannot be attributed to activity in an associated duodenal ulcer. It is of interest to note that the percentage of recurrence rises as the time of follow-up lengthens.

Table 17 gives an analysis of the 15 patients who had recurrences. Recurrence is generally considered as an indication for operation, and this table shows findings in the group not operated upon.

TABLE 17
ANALYSIS OF 15 PATIENTS WITH RECURRENCE WHO DID NOT HAVE SURGERY

	No. Cases
Did not return at time of recurrence	2
Refused operation	6
Had single recurrence with rapid recovery	7
	15

COMPARISON BETWEEN BENIGN AND MALIGNANT GASTRIC ULCERS

Figures 1 and 2 show the location of malignant and benign ulcers in this study. Figure 3 shows the percentage of malignant ulcers, obtained by dividing the number

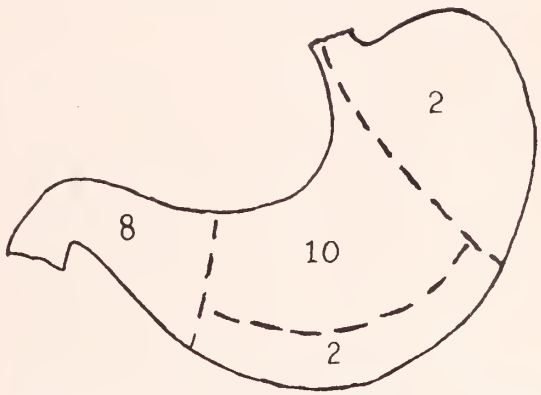


Figure 1. Incidence of malignancy in various locations. Malignant ulcers 22.

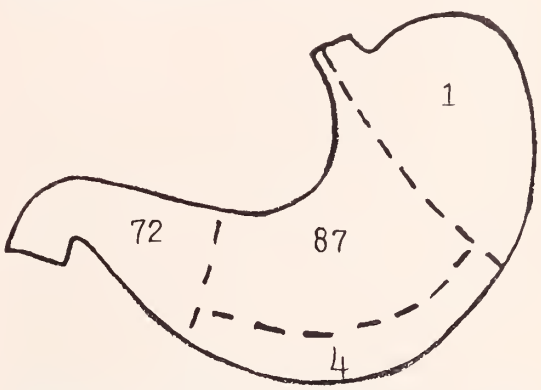


Figure 2. Incidence of malignancy in various locations. Benign ulcers 164.

TABLE 16
ANALYSIS OF 92 CASES DIAGNOSED BENIGN AND TREATED MEDICALLY: INCIDENCE OF RECURRENCE

Length Follow-up	Total No. Cases	No. Dx by X-ray	No. Dx By Sympt. & X-ray	% Recurrence	Without Duodenal Ulcer: Total Cases	Without Duodenal Ulcer: Recurrence No.	Without Duodenal Ulcer: Recurrence %
None	14	—	—	—	—	—	—
Less than 2 years	36	—	2	5.5	20	2	7.2
2 to 5 yrs.	19	4	5	26.3	15	5	33.3
5 to 10 yrs.	16	4	5	31.3	12	3	25.0
10 yrs. or more	7	2	3	42.9	7	3	42.9
Total No. with follow-up	78	10	15	19.2	54	13	24.1



Figure 3. Incidence of malignancy in various locations.

of malignant ulcers by the total number for each location.

In Table 18 a comparison of the findings of gastric analysis is made in patients with benign and malignant ulcers. Anacidity is not incompatible with benign ulcer but is more than three times as frequent in patients with malignant ulcer. No patient with malignant ulcer had free acid over 51 degrees while 5.5 per cent of the benign cases were over this figure. About half of the patients in each group had gastric analysis performed. The results shown are those after histamine or alcohol stimulation.

TABLE 18
COMPARISON OF GASTRIC ACIDITY IN 22 MALIGNANT ULCERS AND 164 BENIGN ULCERS

Acidity	Malignant No. Cases	Malignant Per Cent	Benign No. Cases	Benign Per Cent
Anacidity	6	27.2	12	7.3
Less than 25	1	4.5	38	23.2
26 to 50	5	22.7	21	12.8
51 and over			9	5.5
Not recorded	10	45.4	84	51.2

TABLE 19
COMPARISON OF WEIGHT LOSS IN 22 MALIGNANT ULCERS AND 164 BENIGN ULCERS

	Malignant No. Cases	Malignant Per Cent	Benign No. Cases	Benign Per Cent
10 lbs. or less	9	40.9	116	70.7
11 to 20 lbs.	3	13.6	6	3.6
21 to 30 lbs.	1	4.5	2	1.2
31 or more	4	18.1	6	3.6
Wt. loss but amt. unknown	4	18.1	34	20.7
Gained 10 lbs.	1	4.5		

Comparison of weight loss is shown in the next table. The malignant ulcer group had a much higher percentage of weight loss than did the benign group.

Complications of hemorrhage, obstruction, and perforation are shown in Table 20. There were no perforations in the malignant ulcer group.

TABLE 20
COMPARISON OF COMPLICATIONS IN 22 MALIGNANT ULCERS AND 164 BENIGN ULCERS

	Malignant No. Cases	Malignant Per Cent	Benign No. Cases	Benign Per Cent
Hemorrhage	7	31.8	48	29.2
Obstruction	2	9.1	4	2.4
Perforation	0	0	13	7.9

Table 21 gives a detailed analysis of the benign perforated gastric ulcers. There were no operative deaths. However, only two of the patients with adequate follow-up had a satisfactory course as regards subsequent ulcer behavior and one of these died from heart disease eight months after closure of his perforation.

TABLE 21
ANALYSIS OF PATIENTS WITH PERFORATED GASTRIC ULCERS

Operation	No. Cases	Op. Death
Closure perforation	13	0
Results		
Satisfactory course	2*	
Unsatisfactory course	8	
Subtotal resection		3
Persistent pain		3
Died of amebic abscess 3½ mo. P.O.		1
Died of retroperitoneal tumor 1 mo. P.O.		1
Lost to follow up	3**	

* 1 doing well 9 yrs. after closure, 1 died 8 mo. postop. of heart disease.
** 1 doing well at 6 months.

As can be seen in Table 22, duodenal ulcer occurred in 9.1 per cent of the malignant ulcer cases and in 15.8 per cent of the benign ulcer cases. This shows the fallacy of the often quoted maxim

TABLE 22
ASSOCIATED FINDINGS IN 22 MALIGNANT ULCERS AND 164 BENIGN ULCERS

	Malignant No. Cases	Malignant Per Cent	Benign No. Cases	Benign Per Cent
Duodenal ulcer	2	9.1	26	15.8

that malignant gastric ulcer is not seen with an associated duodenal ulcer.

Table 23 shows the comparison of presenting symptoms in each group. Epigastric discomfort was not tabulated for the benign group as a separate entity but is included under pain. This table emphasizes the inability of differentiation between malignant and benign ulcers by symptomatology.

TABLE 23
COMPARISON OF PRESENTING SYMPTOMS IN 22 MALIGNANT ULCERS AND 164 BENIGN ULCERS

	Malignant		Benign	
	No. Cases	Per Cent	No. Cases	Per Cent
Pain	20	90.9	149	90.9
Vomiting	10	45.4	76	46.3
Dysphagia	2	9.1		
Epigastric discomfort	6	27.2		
Bloating	1	4.5	2	1.2
Weakness			1	0.6
Ascites			1	0.6
Anemia			1	0.6
Nausea			1	0.6

The results of gastroscopy are shown in Table 24. Lesions were visualized in 60 per cent of the cases examined with an accuracy rate of 85.7 per cent. However, it must be noted that in 40 per cent of the patients who were gastroscoped no lesion was seen even though a gastric ulcer was present. In no case was an ulcer demonstrated by gastroscopy which was not also visualized by radiologic examination.

TABLE 24
PATIENTS WHO HAD GASTROSCOPY PERFORMED (35 CASES)

	Cases	Per Cent
Examination unsatisfactory	14*	40
Lesions visualized	21	60
DX benign and confirmed	15**	71.4
DX benign and proved malignant	1	4.7
DX ? malignant and proved benign	2	9.5
DX malignant and proved malignant	3	14.3
85.7% accurate. 14.2% inaccurate.		

* Two patients had two gastroscopies with failure to visualize ulcer.

** In one case ulcer was not seen on initial examination.

COMMENT

In this group of 186 patients with gastric ulcer the incidence of malignancy was 11.8 per cent. This incidence is similar to that encountered in other larger series. Smith and Jordan [2] in a review of 600 gastric ulcers at the Lahey Clinic found that 9.8 per cent were malignant. Cain, Jordan, Comfort and Gray [3] at the Mayo Clinic reported a 10.4 per cent incidence of carcinoma in 414 gastric ulcers, while Allen [4] found that 14 per cent of patients treated as having benign gastric ulcers at the Massachusetts General Hospital proved to have malignant lesions.

A study such as this demonstrates that the crux of the gastric ulcer problem is the impossibility of definitely differentiating benign from malignant lesions by any other means than microscopic examination of the excised ulcer. It further emphasizes the inadequacy of the generally accepted plan of medical management of gastric ulcer as it has been practically applied in this university hospital clinic in the last fifteen years. Only 26 per cent of the medically managed group of patients with gastric ulcer could be adequately followed by the desired program of rigid medical control and repeated roentgen examinations. A sense of complacency as regards gastric ulcer in relation to its malignant potential has pervaded the medically managed series of this study. The well-known fact that a small ulcerated gastric cancer may heal on a medical regimen has been reconfirmed by this survey.

The study has also shown that a high incidence of recurrence (24 per cent) with attendant hazardous complications has occurred in the medically managed gastric ulcers and that this incidence increases proportionally with the length of follow-up. In contrast, the incidence of recurrence after surgical treatment of benign gastric ulcer has been quite low (2.6 per cent) and the long range results have been generally good.

Consideration of the above findings with specific emphasis on the clinician's inability to differentiate benign from cancerous lesions in a disease which has an incidence of malignancy of 10 to 14 per cent leads us to the conclusion that the

generally accepted plan of medical management for gastric ulcer should be abandoned and that patients with ulcerating lesions of the stomach should have prompt surgical intervention without a preliminary trial of medical therapy.

SUMMARY

The following conclusions have been drawn from this statistical study of 186 patients with gastric ulcer:

1. The gastric ulcers in this series proved to be malignant lesions in 11.8 per cent.

2. Despite a clinic policy during the years of this study of strict medical regimen with frequent x-ray examinations to determine healing of the ulcer within the first six weeks after diagnosis, only 26 per cent of the medically managed group could be adequately followed.

3. It is not possible by present diagnostic methods to determine whether a gastric ulcer is malignant or benign until it is surgically removed and studied microscopically.

4. The incidence of recurrence and unfavorable results increases in direct proportion to the length of follow-up in the medically managed gastric ulcer group.

5. The long range results of partial gastric resection for benign gastric ulcer are generally good.

6. Therefore we conclude that patients with ulcerating lesions of the stomach should have surgical intervention as soon as the diagnosis is made without a preliminary period of medical management.

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SERUM TRANSAMINASE AS AN AID IN THE DIAGNOSIS OF MYOCARDIAL INFARCTION *

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The diagnosis of myocardial infarction by electrocardiographic criteria may often present many difficulties. Conduction defects such as left bundle branch block and Wolfe - Parkinson - White syndrome make the diagnosis of a recent myocardial infarction by the electrocardiogram extremely difficult. A similar problem can exist when multiple previous infarctions make significant alterations in the electrocardiogram undetectable. Because of the above-cited situations, many of the alterations in the blood of patients who have experienced a recent myocardial infarction have been studied by several investigators in the past. Some of these, such as fever, leukocystosis, an elevated erythrocyte sedimentation rate and plasma fibrinogen levels, the presence of C-reactive protein as well as alterations in blood coagulability, serum lipids, globulins, copper and iron are all nonspecific indications of an inflammatory process. They vary in their sensitiveness, and as a result of their nonspecificity all may be false indicators of myocardial necrosis if necrosis exists elsewhere in the body.[1]

MECHANISM OF SGO-T ACTIVITY

Recently, LaDue and co-workers have studied the properties of serum transaminase and have shown this enzyme to be elevated in the serum following an acute myocardial infarction.[2] The study of this tissue enzyme activity of the blood following a recent infarction may be a more direct approach of muscle necrosis. Also,

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this may prove to be a simple chemical test which will be of diagnostic help in recent infarction.

Glumatic oxalacetic transaminase is a specific tissue enzyme concerned with the transfer of alpha-amino nitrogen of aspartic acid to alpha-keto glutaric acid, resulting in the synthesis of a new amino-acid, glutamic acid and a new alpha-keto acid, oxalacetic acid.[3] SGO-T activity has been demonstrated in all human and animal sera tested. Heart muscle, skeletal muscle, brain, liver and kidney contain SGO-T in decreasing concentrations, although it is distributed widely in animal tissues. Injury to heart muscle, skeletal muscle, liver and kidney will cause increased activity of SGO-T in the serum. Serum transaminase activity has been found to be normal in infectious, degenerative, neoplastic, allergic, reactive or congenital disease states, unless damage to liver, heart or skeletal muscle is present.[4]

SGO-T activity in the blood increases 2 to 20 times normal after acute myocardial infarction. Experimental infarctions in dogs have shown that this rise in the blood is associated with a corresponding decrease in the transaminase concentration of the infarcted area.[5] Again, with myocardial infarction produced experimentally in dogs, the increase in activity occurs within six hours following the production of an infarction, and both the degree and duration of the enzyme abnormality appear to be proportional to the size of the infarction. Myocardial ischemia of forty-five minutes' duration did not influence the serum level of glutamic oxalacetic transaminase. This suggests that the mechanism of elevation of transaminase activity is simply one of release of the enzyme into the bloodstream following death or increase in cellular membrane permeability. The routes of excretion and degradation of the enzyme are not yet known.[6]

Serum transaminase activity in the blood may be increased 20 to 100 times normal in hepatitis due to toxic or infectious agents. SGO-T activity during the acute phase of hepatitis, whatever its cause, actually permits differentiation of jaundice due to this cause from that due to cirrhosis, extrahepatic obstruction of the biliary ducts, liver metastasis and hemolysis.[7]

STUDY OF 134 PATIENTS

The present study is a continuation of a previous study,[8] and was undertaken to evaluate the determination of serum transaminase activity as an ancillary procedure in the clinical diagnosis of myocardial infarction. One hundred and thirty-four patients were studied. The spectrophotometric method of determination was used.[3] Approximately 75 per cent of the patients in this series represented admissions to the Louisiana State University Medical Service at Charity Hospital at New Orleans. The remaining 25 per cent were patients of physicians in private practice. There were 35 patients with established diagnoses other than recent myocardial infarction or liver disease, who served as a control group. The range of SGO-T activity in this control group varied from 6 to 40 units, the mean being 16.2 units. Values exceeding 50 units were considered to be elevated, this being the lowest level observed in the group with clinical and electrocardiographic manifestations of myocardial infarction. The remaining patients presented with chest pain of a nature that the diagnosis of a recent infarction was suspected. Of these patients, 47 had clinical and electrocardiographic evidence of acute myocardial infarction. Forty-five of 47 patients in this particular group had SGO-T levels above 50 units, varying from 50 to 266 units. The levels became increased as early as four hours and as late as three days following the onset of chest pain. Thirteen of these patients expired, but postmortem examination was obtained in only 6 of these. All 6 exhibited gross and microscopic evidence of recent myocardial infarction by postmortem examination.

Of the 2 patients with clinical and electrocardiographic evidence of acute myocardial infarction whose transaminase levels were in the normal range, 1 had re-

peated specimens drawn, the maximum level being 40 units. The other patient had evidence of a recent massive transmural infarction, both electrocardiographically and by postmortem examination. The patient expired seven hours after the onset of pain, and the specimen had been drawn six hours after the onset of pain.

Three patients with electrocardiographic changes indicating the presence of a conduction defect, namely left bundle branch block, but without definite electrocardiographic evidence of the change of a recent myocardial infarction, were noted to have SGO-T levels above 50 units. All 3 patients had clinical manifestations of myocardial infarction.

Of the remaining, 49 had suspected myocardial infarctions not verified by electrocardiogram. All had serum transaminase levels under 50 units, varying from 10 to 48 units. Electrocardiographic patterns in this group varied from normal electrocardiographs to patterns of ischemia.

These observations suggest a correlation between serum transaminase activity and electrocardiographic changes in recent myocardial infarction and indicate the usefulness of this laboratory procedure as an aid to the diagnosis of myocardial infarction.

CONCLUSIONS

1. We wish to point out that this laboratory test definitely does not attempt to replace clinical judgment or the electrocardiogram in the diagnosis of a recent myocardial infarction. It should be integrated into the general picture.

2. This laboratory test may be the advance guard in the development of a highly sensitive and specific blood chemical test for the detection of a recent myocardial infarction.

3. The greatest value of this test will be in those cases with conduction defects where the electrocardiogram may be of little help in the diagnosis of an acute infarction. Further study with this group is indicated, supplemented by postmortem studies.

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SHIGELLOSIS *

A REVIEW OF SHIGELLOSIS CASES ADMITTED TO THE PEDIATRIC SERVICES OF CHARITY HOSPITAL AT NEW ORLEANS DURING A ONE-YEAR PERIOD, 1955

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Shigellosis has been a common cause of disease and death since early times. Better standards of living, improved sanitation, and modern therapeutic measures have drastically reduced morbidity and mortality due to this disease. Because of these changes many physicians may not be aware of the problems shigellosis still presents today, and for this reason a review of our experiences with this disease during 1955 was deemed worthwhile.

This report is primarily concerned with patients admitted to the pediatric services at Charity Hospital of Louisiana in New Orleans between January 1, 1955, and December 31, 1955. This group represents

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only 62 of 222 hospitalized or clinic patients of all ages from whom Shigella organisms were isolated. These 62 patients represent 11 per cent of the 575 patients admitted to the pediatric services with the diagnosis of diarrhea.

The cultures were obtained by rectal swab and were studied by the usual microbiological techniques. The rectal swab was streaked on a quadrant of an SS plate and was further streaked by bacteriological loop through remaining quadrants. After twelve to eighteen hours' incubation at 37° C., at least three colonies which neither fermented lactose nor produced H_2S were inoculated into Kligler's iron agar and urea broth (Difco). After twenty-four hours' further incubation those colonies showing fermentation reaction typical of Shigellae in Kligler's medium and failing to hydrolize urea were tested for agglutination by a slide technique using commercial type-specific Shigellae antisera (Lederle). In practically all instances only Group B and D sera were used. In all cases identfication was confirmed by biochemical activity of the strains, including carbohydrate fermentations, indol production and citrate fermentation, and motility in a semi-solid medium.

CLINICAL MANIFESTATIONS

Review of the major clinical manifestations revealed diarrhea, fever, and blood in the stools to be the most common signs and symptoms. (Table 1) Every case except one had evidence of diarrheal stools. The stools were described as watery in consistency and yellow or green in color. Macroscopic blood in the stool was present in 50 per cent of the cases, either by history or observation of the stools during hospitalization. Ninety percent of the patients demonstrated a temperature of 100° F. or over sometime during their illness.

TABLE 1
MAJOR CLINICAL MANIFESTATIONS OF 62 PATIENTS WITH SHIGELLOSIS

Diarrhea	61
Temperature over 100°	56
Blood in stools	31
Convulsions	19
Delirium	6

It soon became evident that these cases could easily be divided into two rather well-defined clinical pictures. (Table 2) Those children under 3 years of age usually followed a pattern of a gradual or insidious onset with diarrhea for two to seven days or longer before they were admitted to the hospital. An intermittent fever existed for several days before admission. There were few other distinguishing features. Many of these patients were not brought to the hospital for treatment until blood was noticed in the stools.

TABLE 2
DIFFERENCES IN CLINICAL MANIFESTATIONS BY AGE GROUPING IN 62 PATIENTS WITH SHIGELLOSIS

	Under 3 yrs.	3 yrs. or over
Total	36	26
Diarrhea	35	26
Temp. over 100°	31	25
Abrupt onset*	12	21
Blood in stools	17	14
Convulsions	6	13
Delirium	0	6

*Abrupt onset: Onset of symptoms 24 hours or less prior to admission to hospital.

The children 3 years of age or older presented a more acute illness, with sudden onset, high fever, and toxicity. Convulsions occurred in 50 per cent of these children. Many of these patients did not develop diarrhea until after they arrived on the ward.

No difference in symptomatology was found to relate to any other factor including the comparison of cases of *Shigella flexneri* and cases of *Shigella sonnei.*

THERAPY

The therapy used in these cases consisted of parenteral fluid, specific antibiotic or chemotherapeutic agents, and sedation. Thirty-eight of the 62 cases warranted the use of intravenous fluids. Sedation was limited to patients with CNS manifestations. All patients were treated with one or more specific agents.

Sulfadiazine or a triple-sulfonamide mixture was used in the majority of cases. (Table 3) A combination of sulfonamides and chloramphenicol was the second most common regimen. All but one case responded well clinically on initial therapy.

TABLE 3
ANTIBIOTIC OR CHEMOTHERAPEUTIC AGENTS USED IN 62 PATIENTS WITH SHIGELLOSIS

One of sulfa drugs	44
Sulfa + chloramphenicol	11
Chloramphenicol	4
Sulfa + tetracycline	1
Sulfa-chloro-tetra	1
Sulfa-chloro-oxytetracycline	1

In cases where follow-up cultures were obtained the results mirrored the clinical response.

The usual course of these patients was early clinical improvement with complete absence of signs and symptoms by the fourth day of therapy. Only 8 patients required longer convalescence, and they had shown marked improvement by the fourth day.

One child who did not follow the usual clinical course on sulfonamide therapy was found to harbor a strain of *Shigella flexneri* which was resistant to the various sulfonamides, according to *in vitro* sensitivity tests. This strain was sensitive to chloramphenicol and tetracycline. After two days of therapy with chloramphenicol this child became asymptomatic, but seven additional days of therapy did not eradicate the organism from the stool. The child was placed on tetracycline for five days, during which time stool cultures became negative for Shigella.

FAMILIAL INFECTION

Stool cultures were obtained from members of the families of 18 patients. (Table 4) It was not possible to obtain a culture from every member of each family. Only one culture was obtained from each person investigated. In 15 families at least one person other than the index case was found to harbor Shigella organisms. The same type of organism found in the index case of each family was recovered from 24 of the 43 family members cultured.

TABLE 4
STUDY OF FAMILIES OF PATIENTS WITH SHIGELLOSIS

Families cultured	18
Families with at least one member with positive culture	15
Total number of family members cultured	43
Family members with positive culture	24

None of above figures includes the index cases.

DISCUSSION

From this review, 1 out of every 10 children with diarrhea admitted to this hospital was found to have shigellosis. This probably is not the true incidence of Shigella infections in this community. Only patients with severe or unusual symptoms were picked from our large out-patient service for admission. The incidence of shigellosis found also may have been influenced by diligence in the search for the organism. Since this was not a research project, repeated anal swabs were not obtained on many patients found to have a negative culture on the first attempt. Both of these factors may have influenced the results. The 11 per cent of the diarrhea patients with shigellosis found here is not comparable to 44 per cent reported by Hardy and Watt[1] (New Mexico, 1936-38; Georgia, 1939-40; New York, 1939-40 and 1942) or the 49 per cent reported by Cooper *et al.*[2] (Cincinnati, Ohio, 1938). It can be said, however, that shigellosis is a rather common problem in children at Charity Hospital of Louisiana.

The clinical manifestations listed here are the same as given elsewhere and reflect the point made by Hardy and Watt that the signs and symptoms presented by patients with shigellosis are not distinctive enough to differentiate clinically the cases from other types of diarrhea.[3]

CNS disturbance such as convulsions or delirium occurred in 40 per cent of the patients. This is a much higher incidence than is usually encountered in patients hospitalized with other types of diarrhea, and agrees with observations reported by Donald *et al.*[4] The predominance of these symptoms in the other age group appears to be significant.

It cannot be assumed that the good clinical response of patients was due to the antibiotic or chemotherapeutic agent used. This point could not be adequately assessed as a control group was not used. It is interesting that 6 patients who did not receive specific therapy until the third to fifth day of hospitalization showed clinical

improvement before such agents were administered. The degree of improvement was comparable to that of patients receiving specific therapy. However, Hardy and associates found that the clinical response of patients receiving sulfonamides and nonspecific therapy was definitely slower and more irregular than the response of patients receiving antibiotics effective against the particular strains of organisms.[5] Further questions concerning the actual role of sulfonamides may be obtained from the study of Tateno. He demonstrated that while 13 of 14 strains of *Shigella flexneri* isolated in the United States before 1952 were sensitive to sulfadiazine, only 2 of 8 strains isolated in 1953 were sensitive.[6] All of the strains isolated in the United States in his study were sensitive to streptomycin, chloramphenicol, oxytetracycline, chlortetracycline, and tetracycline by *in vitro* studies.

Hardy and associates, in reporting on a study in Korea, concluded that aureomycin, chloramphenicol, and terramycin are all effective in shigellosis.[5] Tetracycline was not available at that time. Sulfonamides were of little use in their study as most of the strains of Shigella encountered were resistant.

One of the most interesting, and possibly least appreciated, aspects of the shigellosis problem is the relationship of familial infection to the given case. In order to gain more understanding of this aspect of the disease, cultures were obtained from all available members of the families of 18 cases of shigellosis. Shigella organisms were recovered from a family member other than the index case in over 80 per cent of the families. Over 50 per cent of family members cultured harbored Shigella organisms of the same type found in the index case. Most of these familial contacts were asymptomatic at the time of the culture. Historical data were not adequate to evaluate previous history of diarrhea in family contacts.

The method of spread of these organisms within the family group, the relationship of familial infections to "relapses," and the role played by such infected families in the community problem of shigellosis are subjects of some importance that need further clarification. Most infected family members received specific therapy in this series. This approach to the problem needs further investigation.

SUMMARY

A review of the cases of shigellosis admitted to the pediatric services of Charity Hospital in New Orleans during 1955 revealed that this disease is still a problem at this hospital. The 62 cases reviewed represented 11 per cent of all patients admitted to the pediatric services with a diagnosis of diarrhea.

The clinical picture manifested by these patients was not distinctive enough to differentiate them from other types of diarrhea. Among the children with shigellosis there were two fairly distinct clinical pictures which could be correlated with the age of the patient.

The response of the patients to treatment was usually good and was apparently influenced more by supportive care, such as parenteral fluids and electrolytes, than by the type of chemotherapeutic agent or antibiotic used.

Over 50 per cent of the family contacts screened were found to harbor the same type of Shigella organism as the patient. Questions arise concerning the problem of familial infection, in relation both to a given case and to the community at large.

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DISORDERS OF THE APPENDIX; SOME UNUSUAL CASES *

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The purpose of this paper is simply to point out a variety of unusual conditions observed in the appendix in the past few years. Regardless of the underlying condition, inflammation is the process which calls clinical attention to the appendix. As will be seen, then, the cases to be presented all show appendicitis. In practically all cases of appendicitis there are essentially two underlying factors: The first is infection which is present in every case of appendicitis. The second is obstruction which is present in most of the cases of severe acute appendicitis.

I. NEOPLASMS

A. *Primary adenocarcinoma.*

The first case to be presented is that of a primary adenocarcinoma of the appendix. This patient was an eighty year old colored female who had pain in the right lower quadrant, vomiting, fever, tenderness and abdominal distention. A clinical diagnosis of appendicitis with retrocecal abscess was made and an appendectomy was performed. At operation the appendix was found to be ruptured and a pericecal abscess was also present. On pathologic examination of the specimen, it was found to measure 7 by 4 by 3 cms. There was abundant fibrinopurulent exudate over the entire external surface. It was noted on section that the lumen was occluded but it was only on histologic examination of sections that the occlusion was found to be due to a primary adenocarcinoma, projecting into the lumen and occluding it, (Fig. 1). The sections also showed a severe acute suppurative appendicitis. A right colectomy was suggested on the basis of the pathologic diagnosis of carcinoma of the appendix, but the patient refused further surgery. She was discharged from the hospital sixteen days after operation. She was readmitted one year later and an exploratory laparatomy at that time revealed involvement of the ileum and the anterior abdominal wall by the carcinoma. An ileotransverse colostomy was done and the patient discharged after thirteen days of hospitalization. This was three years ago. Nothing further is known of the patient at this time.



Figure 1. Primary adenocarcinoma of the appendix, obstructing the lumen.

In a study of 50,000 appendices, Collins [1] found 41 cases of primary adenocarcinoma, an incidence of 0.082 per cent. In general, adenocarcinoma of the appendix [2] is a disease of older people (55 years or over). The carcinoma is usually polypoid or fungoid, often at the base of the appendix, causing obstruction and subsequent acute appendicitis. It is to be noted that adenomatous polyps may occur in the appendix as they do in the colon.[3, 4] In fact, they may be a part of the picture of polyposis of the colon. It is highly probable that they also are premalignant lesions. They likewise may cause obstruction of the lumen of the appendix with subsequent appendicitis.

B. *Primary lymphosarcoma.*

The next case to be presented is that of a primary lymphosarcoma of the appendix. This patient was a male in his thirties with a clinical picture of typical appendicitis. An appendectomy was done and upon examination of the specimen there was evidence of acute suppurative appendicitis. On section, however, it was noted that the wall of the appendix was greatly thickened and it was found that the lumen appeared to be occluded by a bulge, extending beneath the mucosal surface. On microscopic examination, it was

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found that an extensive infiltration of lymphoid cells with hyperchromic nuclei involved large areas of the wall of the appendix (Fig. 2). It was clear that this involvement of the wall of the appendix by lymphosarcoma had caused obstruction of the lumen and subsequent acute appendicitis.

In Collins' series of 50,000 appendices,[1] the incidence of lymphosarcoma of the appendix is stated to be 0.014 per cent (7 in 50,000). Lymphosarcoma of the appendix may represent the primary site of involvement in this disease.[5] It may, of course, be part of a generalized lymphosarcoma. Untreated, it will surely become generalized, though it is known that at times lymphosarcoma in various portions of the gastrointestinal tract may remain localized for a time and surgical excision may result in apparent cure.

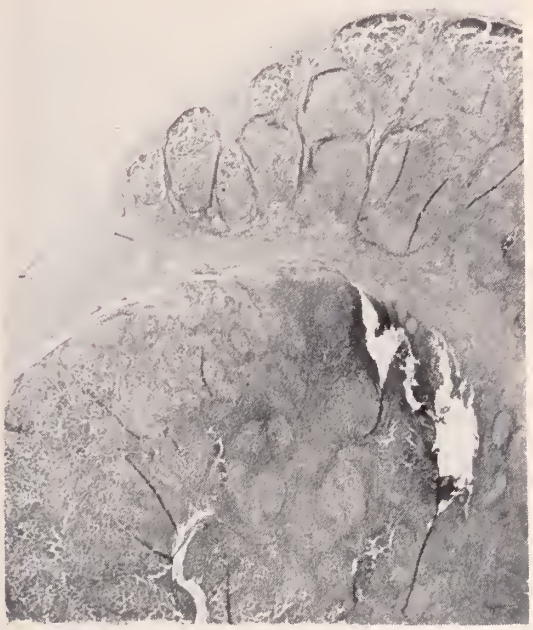


Figure 2. Primary lymphosarcoma of appendix, extensively involving the wall of the appendix, including the muscularis and serosa.

C. *Mucinous adenocarcinoma of cecum, invading base of appendix.*

The next case to be presented is that of a mucinous adenocarcinoma of the cecum with involvement of the base of the appendix. This patient was a 74 year old colored female who was observed three months previously with signs of intestinal obstruction. On the present admission there was pain and burning in the epigastrium with a palpable mass in the right lower quadrant. At operation a fungating mass was found in the cecum. The cecum and adjoining appendix were removed and on pathologic examination, it was found that the mass invaded the base of the appendix. The appendix was markedly dilated and contained mucoid material, typical of mucocele of the appendix. In the wall of the base of the appendix, the carcinoma took the form of an infiltrative adenocarcinoma (Fig 3). In other areas, the carcinoma was less well differentiated, having the appearance of a mucinous carcinoma.



Figure 3. Adenocarcinoma of cecum invading the base of the appendix, obstructing the lumen and causing dilatation (mucocele) of appendix.

D. *Carcinoids.*

The first of two cases of carcinoid to be presented is that of a 69 year old white female with a clinical diagnosis of appendicitis. An appendectomy was done and the appendix showed a typical acute suppurative appendicitis with cystic dilatation of the distal end. On section it was found that the proximal end was markedly thickened and showed both fibrosis and a diffuse infiltration of neutrophiles. In the dilated distal end of the appendix, within the wall, there were nests of cells, typical of a carcinoid. It is probable that this carcinoid was an incidental finding, the appendicitis being related to the fibrosis and partial obstruction in the proximal portion.

The more typical gross appearance of carcinoid is shown in the following case. This patient was an adult female with a clinical diagnosis of acute appendicitis and in whom the appendix showed a bulbous distal end with obliteration of the lumen

by the massive infiltration of neoplastic cells. These are seen microscopically in Figure 4. In this appendix also, there was a severe acute inflammatory process.

In the series, previously referred to, Collins[1] found an incidence of carcinoids of 0.522 per cent. Carcinoids may remain localized or occasionally may metastasize. About one in five will undergo metastasis, perhaps only to the regional lymph nodes or more rarely to distant organs. Unfortunately, the histologic appearance of those which metastasize and those which remain localized may present no differences by which the pathologist is able to predict the metastasis.

E. *Neurofibroma.*

The next neoplastic condition which was found to cause obstruction of the appendiceal lumen was a neurofibroma. This patient was a 34 year old colored female who had had an incision and drainage of an appendiceal abscess three months prior to the present admission. The abscess recurred and the patient was readmitted. Again incision and drainage was performed. Eleven days later an appendectomy was done. At the same time, a small mass was removed from the wall of the cecum. On pathologic examination, the appendix was found to be retort-shaped, measuring 7 cm. in length with a diameter of 2 cms. in the distal end and 1 cm. in the proximal end. Fibrinous exudate was present on the external surface. The lumen was found to be obstructed at the junction of the proximal third with the distal two-thirds, by grayish yellow tissue. The separate mass from the wall of the cecum measured 1 to 2 cms. in its various dimensions and was firm and grayish white. On section, the obstruction of the appendiceal lumen was found to be caused by whorled irregular fibers and intervening cells. A special stain for nerve fibers showed this tumor to be of neural origin. The cells, in this stain, are noted to be finely granular (Fig. 5). Sections of the tumor from the cecum showed a similar histologic appearance. The final pathologic diagnosis was "granular cell neurofibroma".

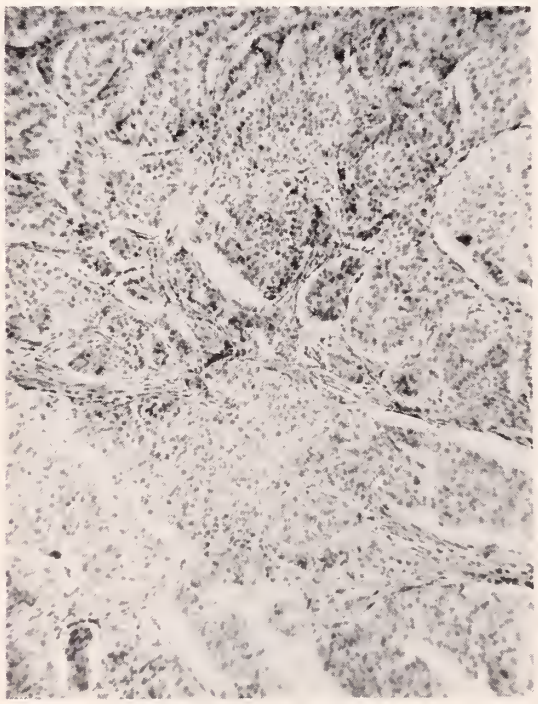


Figure 4. Masses of carcinoid cells, obliterating lumen of appendix in bulbous distal end.

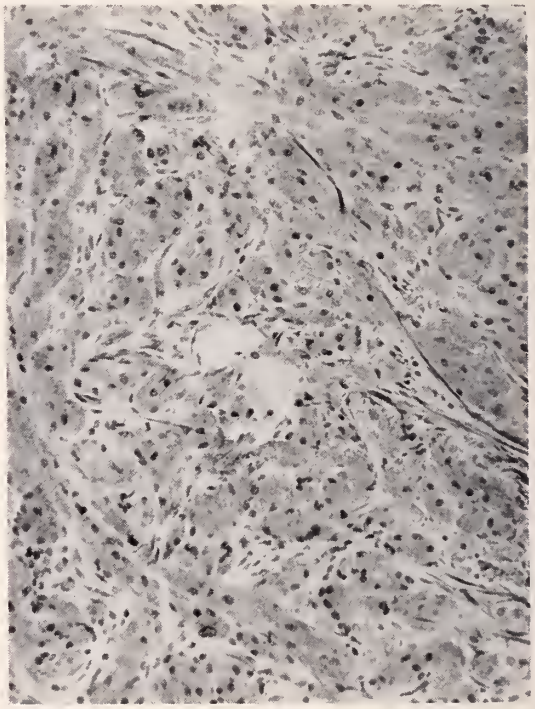


Figure 5. "Granular cell" neurofibroma of appendix, special stain to show details of the neural elements.

The incidence of neurofibromas of the appendix was found to be 0.38 per cent in Collins' series.[1] Not infrequently, one will find neuromatous proliferation of nerve elements in appendices in which fibrosis has obliterated the lumen. Not infrequently, also, a proliferation of the nerve plexuses of Meissner and Auerbach is seen in healing appendices. These neural proliferations are not true neoplasms. The tumor in the present case, however, is considered to be a true neoplasm of benign nature.

II. DIVERTICULA OF APPENDIX

In the next group of cases, the pathologic change was essentially inflammatory but showed a condition not often ascribed to the appendix, namely, one or more diverticula. The clinical picture leading to the appendectomy in these cases is usually that of acute appendicitis. On gross examination of the appendix, there may be evidence of acute appendicitis, but, in addition, there is often marked thickening of the wall with small blister-like projections from the surface. These projections may occur anywhere along the length of the appendix, more on the mesenteric than the antimesenteric border.[6] A typical diverticulum is demonstrated in figure 6. The diverticulum which is most commonly seen is an acquired diverticulum and is false, with herniation of the mucosa through the muscularis. The herniation may occur at vascular hiati or may be the result of destruction of the muscularis by intramural focal abscesses during an episode of a previous appendicitis. These acquired diverticula may be multiple. Congenital diverticula of the appendix are extremely rare. Acquired diverticula were encountered in 1.38 per cent of the cases studied by Collins.[1]



Figure 6. Diverticulum of appendix, consisting essentially of a herniation through the muscularis. The wall is composed largely of mucosa and thickened serosa.

At least two important facts may be related to the presence of diverticula in an appendix: (1) The diverticulum may be the site of rapid perforation when a recurrence of appendicitis begins; (2) a diverticulum of the appendix may rupture during the quiescent phase of appendiceal disease and become a source of pseudomyxoma peritonei.[7] For these two important reasons, an appendectomy should always be done at exploratory laparatomy when the appendix is found to harbor diverticula.

III. APPENDICITIS IN A NEWBORN INFANT

The final case to be presented is unusual by virtue of the time of life at which it occurred. This patient was a female infant, one of twins, delivered by cesarean section, five years ago. The birth weight of this patient was 3 pounds 14 ounces. Incidentally, the other twin is living and well at the present time. The patient was noted to become occasionally cyanotic shortly after birth. Two days later, cyanosis was more troublesome and the patient had begun to grunt and to vomit. The temperature became elevated to 101.2° F. on the seventh day of life. The baby died on the ninth day of life. At autopsy, the body weight was 1610 grams (3 pounds 7 ounces). The abdomen was markedly distended. The peritoneal surfaces were covered with a diffuse fibrinopurulent exudate. The stomach was dilated. The fibrinopurulent exudate was found to be most marked in the right lower quadrant and the appendix was dark red and roughened. (Fig. 7). In addition to the abdominal findings, a small zone of hemorrhage was noted in the right lateral ventricle of the brain. There was also an early acute meningitis. This then was a

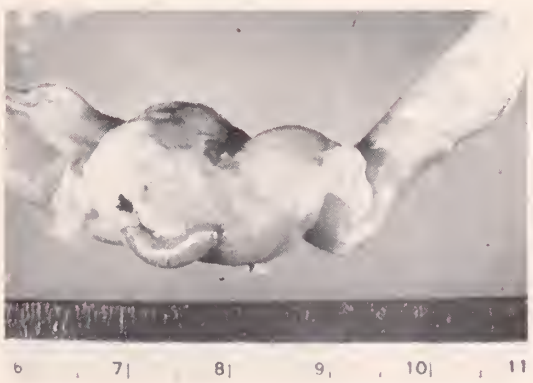


Figure 7. Appendix with attached cecum and ileum, showing acute appendicitis and fibrinopurulent exudate on peritoneal surface of adjacent structures.

case of acute appendicitis with peritonitis in a premature newborn infant of nine days.

In general, the diagnosis of appendicitis in young children is extremely difficult.[5] Often the total leucocyte count will not be elevated; the history is difficult to elicit or is atypical; and the physical findings may not be typical. In addition, young children frequently develop peritonitis rapidly following the onset of appendicitis.[5] Among the causes of this are the frequent use of cathartics in these children by ill-advised parents or other adults; the children, too, are unable to localize their complaints or to describe them; the underdeveloped omentum fails to protect and wall off the involved area; the high position of the cecum in children may be misleading to the clinician since the pain in the abdomen may seem to be unusually high.

SUMMARY AND CONCLUSIONS

1. A variety of neoplastic disorders, causing appendicitis by obstruction of the lumen has been presented: These include primary adenocarcinoma, primary lymphosarcoma, mucinous adenocarcinoma of the cecum, carcinoid, and neurofibroma.

2. Appendiceal diverticula result from previous inflammation of the appendix. They may lead to rapid rupture in recurrent appendicitis or they may perforate during the quiescent phase of appendiceal disease and become a source of pseudomyxoma peritonei.

3. A case of acute appendicitis with peritonitis occuring in a newborn premature infant is presented.

4. Regardless of the underlying pathologic condition in the appendix, it is an inflammatory reaction, appendicitis, which calls clinical attention to this organ.

Note: The author wishes to thank Dr. Joseph Ziskind for the use of the case of primary lymphosarcoma and Dr. Charles Dunlap for the case of neurofibroma.

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THE DEVELOPMENT OF VISION IN THE CROSS-EYED CHILD *

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Strabismus is not a rare condition. Surveys have shown that 1 per cent to 1.5 per cent of the children in a general population group are cross-eyed, and certainly each of you know of several such cases. Strabismus, squint, weak or paralyzed eye muscle, wall-eyed, cock-eyed, and cast in the eye are all synonyms for cross-eyes. The crossed eye may be turned laterally toward the temple, medially toward the nose, upward or downward.

MECHANISMS OF VISION

First, let us briefly analyze vision. There are two controlling mechanisms: (1) the extra-ocular muscles and their nerves which function to carry out the movements of the eyes; and (2) the sensory visual apparatus, which is responsible for the formation of images on the retina, the transmission of these images to the visual areas of the brain, and the blending of these bilateral images to form a single image with depth perception. These two delicately adjusted mechanisms are related to fixation, visual acuity, and fusion.

The individual first must be able to fixate each eye on the object he is trying to see because while the eyes are moving they do not see anything but large objects. They must stop and look steadily at

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smaller objects in order to see them. This process of holding the eyes steady is known as fixating. Secondly, each eye must have good visual acuity in order to see the smaller objects clearly. And thirdly, the individual must possess the ability to blend the images of the two eyes to form a single image. This ability is known as fusion.

The development of fixation, visual acuity, and fusion in a child was measured by Chevasse [1] and later confirmed by Gesell and his associates.[2] (Table 1) Their studies have shown that when a child is born he sees light but cannot follow it and does not have fixation. During the first few years of life the child must learn to see just as he must learn to walk and talk. Although he is born with two eyes, he must learn to use them. And like walking and talking, it is through practice, usage, and learning that he develops his abilities for fixation, visual acuity, and fusion.

When the eyes of a two week old infant try to fixate an object, they display only incoordinate disjunctive movements. At first these movements are inexact and the eyes simply swing pendulum-like until light strikes the fovea. By the end of the sixth week of life an infant is able to hold fixation for a few seconds. By a process of continuing adjustment for foveal fixation, an exact binocular fixation ability usually develops between the third and fifth months. The eyes fixate simultaneously and follow objects, and the child can reach for them fairly accurately, although his visual acuity is only 20/200.

If reflex fixation movements develop and become firmly established, the two eyes will remain parallel most of the time. Once this happens, vision begins to develop. The visual acuity is 20/150 at 12 months of age. The most rapid development of vision is during the first two years. At the end of that time the acuity is 20/45. The visual acuity reaches 20/20 between the fourth and sixth year.

The function of the fusion reflex is to correct any minor imperfections in the coordination of the two eyes. The fusion reflex is first recognized at the age of two years, at which time it is capable of complete extinction. By the age of three years these reflexes are becoming established, though they will suffer readily and seriously from disuse. At the age of four years the fusion reflexes are grounded, and while disuse may cause deterioration, it cannot cause extinction. Any loss sustained after this age can be rapidly overcome by re-use. The adjusting mechanism of the fusional reflex is capable of increasing its power of coordination and regulation with practice. Greater skill is

TABLE 1
STEPS IN THE DEVELOPMENT OF VISION *

Birth	Visual Acuity	Fixation and Stability
2 weeks		Aimless movements.
6 weeks		Momentary fixation.
5 months	20/2000	Fixation held for few seconds.
6 months	20/1000	Exact fixation held.
9 months	20/200	Normal field of fixation.
2 years	20/45	Fusion reflex is recognized. Capable of complete extinction.
3 years	20/30	Fusion reflex established. Deteriorates greatly from disuse.
4 years	20/25	Fusion reflex and visual acuity deteriorate from disuse; rapid recovery with re-use.
6 years	20/20	Fusion reflex and visual acuity more stable; may still deteriorate from disuse.
8 years		Fusion reflex and visual acuity unconditionally fixed.

* Modified from Lyle.[1]

thus acquired. By the age of five years the fusion reflexes have assumed unconditional fixity though they are still capable of some deterioration from disuse. After the eighth year they become unconditionally fixed and the period of instability has ended.

Thus during the first few years of life the child learns to see. His reflexes become perfected and thereafter the normal development of vision is dependent upon the continued use of both eyes. If for any reason during this developmental period, the child is deprived of the opportunity or is unable to practice and to learn the usage of his eyes, he most probably will become cross-eyed.

CAUSES OF CROSSED-EYES

The eyes may normally cross for a few seconds up to the age of 18 months. This is known as a physiological deviation and is due to incomplete development of the fixation process.

Some children have a wide epicanthal fold and may appear to be cross-eyed. This condition is known as pseudostrabismus, and frequently it is necessary to determine whether a true crossed-eye exists.

The most important thing in any cross-eyed case is to determine why the eye has crossed. The crossed-eye is only a symptom of the underlying condition which prevented the child from being able to use his eyes properly. Let us remember that there are three potentially lethal conditions which may be associated with crossed-eyes. In each of these the squint may be the first evidence of the disease.[3] They are: (1) brain tumor, (2) retrobulbar tumor, and (3) retinoblastoma. The latter is a highly malignant tumor of childhood, in which the eye shows a tendency to cross even before the characteristic gray, cat-like retina can be seen shining through the pupil.

There are a number of other conditions in which crossing of the eyes is present at one stage or another of the pathologic process and in which loss of vision may be the end result.[3] Among these diseases are:

1. *Retrolental fibroplasia.* The crossing of the eyes may be a late manifestation.

2. *Congenital cataract.* The squint is occasionally the first manifestation. This condition which is often associated with nystagmus may be monocular or binocular.

3. *Congenital muscle anomalies.* Strabismus fixus is an illustration.

4. *Errors of refraction.* Loss of vision may result from nonuse of the affected eye. If fusion develops normally, unequal refractive errors may not cause strabismus, because normal fusion can hold the eyes in alignment. If fusion is subnormal, or if it has not developed, crossing of the eyes may result.

5. *Monocular blindness from any cause.* If there is any latent muscle imbalance present the blinded eye will usually turn, since fusion no longer operates to hold the eyes parallel.

The muscular dysfunctions are the most common cause of crossed-eyes[3] and they are due to a variety of causes:

1. *Congenital weakness of the muscles.*

2. *Hereditary strabismus.* This may be inherited by the child even when it does not appear in the parents.

3. *Loss of muscle tone from general disability.* In such cases the squint tends to be periodic, disappearing when the child is in good health and emotionally stable and reappearing when he is ill, nervous or tired.

4. *Childhood diseases.* It is not uncommon to observe crossing of the eyes for the first time after measles, influenza, mumps or some other illness. In such instances the effect of the disease is merely to hasten the appearance of the squint. The latent weakness is already present and would have appeared sooner or later. This is not true of diphtheria which affects the eye muscles directly.

5. *Trauma (Birth injury).* This may occur during delivery and may become manifest then or occur during the growth

of the child. It may be the result of improperly applied forceps, but most often it is the outcome of spontaneous delivery. It has been estimated that in from a third to a half of all spontaneous deliveries the inevitable compression of the head during the process produces multiple tiny bleeding points within the brain. These minute hemorrhages, as a rule, are quickly absorbed. If, for any reason they are not, it is conceivable that some cerebral disturbance may occur, which may result in permanent damage and crossed eyes.

In search for the underlying factor responsible for the crossing of the eyes, it must never be forgotten that more than one cause may be present.

DOUBLE VISION

Frequently the question arises about how does a cross-eyed child see and does he see double. The answer depends on how old the child was when his eyes crossed, and secondly, what caused them to cross because as previously stated, a crossed eye is only a symptom of some underlying pathological process.

If the crossed eye has its onset after the age of six years and there is good vision in each eye, the child will see double and seek relief. When the crossed eye occurs prior to the age of six years and is due to a muscular dysfunction as most of them are, the child does not see double, but he learns to suppress constantly with his weaker eye. He develops abnormal habits of vision and these will become permanent if neglected. The longer they are allowed to remain the more difficult they are to change. The suppression in the weak eye becomes deeper and its visual acuity deteriorates, perhaps to less than 20/200 from disuse. This deterioration may be to the extent that the weak eye has a poor ability to fixate. This is one of the more important complications of leaving the cross-eyed child untreated.

DEVELOPMENT OF DETERIORATION

Actually if treatment is delayed and if obstacles to good vision are not corrected, the extra-ocular muscles will develop irreversible changes which alter their action and limit the motility of the eye. The muscle on one side of the eye will become hypertrophic and fibrotic, as a result of constant contraction and spasm. The antagonist muscle on the opposite side of the eye becomes thinned, atrophic and weakened, as a result of constant relaxation. And these muscular changes are another important complication of leaving the cross-eyed child untreated.

The cross-eyed child knows that he is different from other children. At first he attempts to conceal his abnormality by special positions of the head. In the end, he may become a personality problem, with manifestations ranging from lack of group participation to frank exhibitionism. The personality manifestations may become the most important complication of leaving the cross-eyed child untreated, and may actually be more serious than the squint itself.

THERAPY

The therapy of crossed eyes must obviously begin with an identification of the causes, since they will identify the form which treatment must take. Therapy must be directed at the parents even before it is applied to the child. Parents must be made to understand that the problem is one of visual function as well as one of appearance. The chances of a spontaneous cure, unless the crossing of the eye is of nervous origin, is practically nonexistent. Because the development of vision occurs early in life and is completed by the sixth to eighth year, there is no justification for the general belief that the correction of the squint may safely be deferred until the child is of school age, or even later.

The treatment is aimed at establishing good vision in each eye, good motility in each eye, and proper alignment of the two eyes as early in childhood as possible. The therapist must destroy abnormal visual habits and teach the child normal habits in an effort to restore normal development.

The progress of treatment is comparable to that of straightening teeth—a

long period of treatment with periodic adjustments. The child must be kept under observation during the period of visual development and until the age when the development of visual habits has become complete and permanent. There is no rapid cure for crossed eyes. If the child has a refractive error it should be corrected with glasses so that he will have the maximum opportunity to develop his vision. In teaching the child normal habits, it is often necessary to wear a patch over his better eye for a period of several months so that he will develop better visual acuity and motility in his weaker eye. It is often necessary to prescribe atropine in one eye to discourage the child's preference for using it. Orthoptic exercises may be prescribed to teach and develop a good quality of fusion so that the two eyes will become welded in their position of proper alignment. Surgery may be necessary to restore proper alignment and motility.

Whatever surgical or nonsurgical measures may be applied, the goal of therapy is to eliminate potentially fatal conditions, avoid personality disturbances, and establish stable habits of good binocular vision.

It is essential that the treatment of strabismus be begun before the potentials of normal binocular vision are lost. If treatment is deferred until after six years of age, the results will probably be limited to cosmetic improvements. Although this falls short of the ideal, it is of course a considerable gain because of the social and economic problem caused by being cross-eyed.

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STAPHYLOCOCCAL SEPTICEMIA
MANIFESTATIONS AND TREATMENT *

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The mounting importance of staphylococcal infections is illustrated by the statistics of deVries and Pritchard [1] who reported on cultures taken at autopsy at the Montreal General Hospital. Material was obtained from the heart's blood, cut surface of the lungs, and other infected areas in 213 autopsies. Cultures yielded *Micrococcus pyogenes* in 87 cases of which all but 7 were obtained from the heart's blood or lungs or both. The magnitude of the problem is also reflected in the large percentage of resistant strains which have emerged since the treatment of the first patient with penicillin in 1941.[2] Spink [3] reported, in 1944, that 12 per cent of 68 cultures of coagulase-positive strains of staphylococcus obtained prior to the introduction of penicillin were found relatively resistant to this antibiotic. Since then, numerous [4-6] reports have indicated an increasing number of resistant staphylococci isolated. This is illustrated by Knight's series [7] from Bellevue Hospital where 65 per cent of the staphylococci isolated in 1953 and 1954 were resistant to chlortetracycline, oxytetraclycine, streptomycin, and penicillin. The strains showed intermediate degrees of sensitivity to chloramphenicol and nearly all were susceptible to erythromycin. From December 1, 1952, until March 1, 1954, Wise [8] and associates have observed 23 patients with infections caused by erthromycin-resistant staphylococci. In this paper, we are going to describe the findings and treatment of two cases of staphylococcal septicemia with pulmonary involvement.

CASE REPORTS

Case No. 1. This 22 year old white male was admitted to Tokyo Army Hospital on November 12, 1954, as a transfer from another hospital in Japan. The patient entered the latter hospital

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on October 11, 1954, with an illness of three days' duration characterized by vomiting, anorexia, and fever. Two days after admission, he developed a cough productive of mucopurulent sputum which was occasionally blood tinged. He was treated with antibiotics and the fever subsided. He was transferred to Tokyo Army Hospital for further diagnostic studies and treatment. The patient stated that he had had hepatitis in Korea in 1951 and again in July and August 1954.

Physical Examination: On admission, the patient was a well developed and slightly thin white male, who did not appear acutely ill. The blood pressure was 106/68. The temperature was 98.6° F. The pupils were equal and reacted to light and accommodation. Ophthalmoscopic examination was normal. The throat and tongue were normal. The chest expansion was equal bilaterally. The lungs were resonant and clear. The heart was not enlarged. There was a regular rhythm. There was a grade II systolic apical murmur. On examination of the abdomen, the spleen was palpable just below the left costal margin. The genitalia were normal. Rectal examination was normal. The biceps and patellar reflexes were physiological. There was no edema or significant lymphadenopathy.

Hospital Course: On admission to Tokyo Army Hospital, no antibiotics were started. On November 17, 1954, the temperature spiked to 104.6° F. Examination at that time revealed no nuchal rigidity. There were a few coarse rales at both bases. There was a grade III systolic murmur heard over the entire precordium. The abdomen, prostate, and lower extremities were normal. Two blood cultures were taken and treatment was immediately started with penicillin, 1,000,000 units every two hours. On November 18, the temperature spiked to 105° F. Marked tenderness was noted in the right upper quadrant of the abdomen. On November 19, the two blood cultures were reported hemolytic *Staphylococcus aureus*, coagulase-positive, which was sensitive to chlortetracycline, chloramphenicol, oxytetracycline, bacitracin, and erythromycin, but resistant to penicillin, streptomycin, polymixin B, and neomycin. Tenderness was still present in the right upper quadrant. Penicillin was discontinued and oxytetracycline was started, 500 mg. four times a day. On this therapy, the temperature returned to normal by November 20. Fever recurred on November 23, so chlortetracycline, 500 mg. four times a day, was added to the treatment. On this regimen, the temperature remained normal until December 1, when it went to 100.8° F. On December 5, it spiked to 102.8° F. Because of continued fever, it was decided, on December 11, that other antibiotics should be added to the regimen. So chloramphenicol, 500 mg. four times a day, erythromycin, 500 mg. every six hours, and penicillin, 1,000,000 units every two hours intramuscularly, were started. Chlortetracycline was stopped but oxytetracycline was continued. Subsequently, the patient became and remained afebrile. It was decided that since this was a staphylococcal septicemia, these medications should be continued for a period of at least two months. On February 16, 1955, the penicillin and erythromycin were stopped; on February 24, the oxytetracycline was discontinued; and on March 4, the chloramphenicol was stopped. There were no recurrences of fever. The patient was gradually ambulated and returned to duty by April 1, 1955.

Radiographic Studies: The chest x-ray of October 18, 1954, (Fig. 1), was a lordotic view



Figure 1.

which showed a soft area of infiltration located in the third right interspace in the mid-lung zone. There was a smaller area of infiltration in the third right interspace near the mediastinum. There was also a soft infiltration in the left apex with an area of increased radiolucency measuring almost 2 cm. in diameter which on laminograms was demonstrated to be a cavity. The x-ray of November 5 (Fig. 2) demonstrated decrease in the size of the apical cavity on the left and a thin walled cavity .75 cm. in diameter in the second anterior interspace on the left. There was also a patchy infiltration in the left lower lung field with obliteration of the left costophrenic angle. The right lung was clear except for marked increase in the bronchovascular markings at the base. The chest x-ray of December 6 (Fig. 3) showed a soft area of infiltration from the fourth anterior rib to the diaphragm with obliteration of the right costophrenic angle. The left lung was clear except for a soft infiltration in the fourth anterior interspace. The x-ray of December 9 showed some clearing of the previously described infiltration in the right lower lung field. The costophrenic angle was clear. The lateral view localized the infiltration to the right middle lobe. There was decrease in the density at the left base. The film of December 15 showed areas of linear infiltration in the right fourth anterior interspace. There was a .75 cm. soft area of infiltration in the third left anterior interspace.



Figure 2.

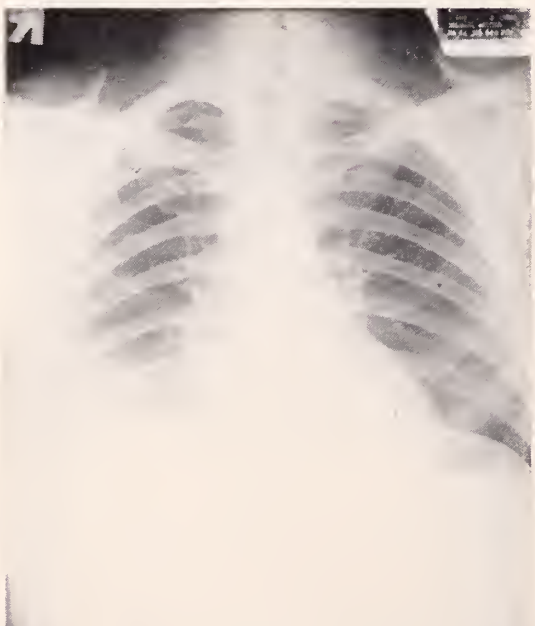


Figure 3.

The film of January 4, 1955, showed progressive clearing of the previously described densities. The chest x-rays of March 9 were normal.

Case No. 2. This 21 year old white male was admitted to Tokyo Army Hospital on August 11, 1955, as a transfer from another hospital in Japan. On April 16, 1955, he entered a hospital in Korea, with a history of cough, right chest pain, and malaise of twelve hours' duration. He gave a history of having taken intravenous morphine for two months prior to the onset of his illness. On admission to the Army hospital in Korea, his temperature was 102.8° F. and there were dullness and expiratory rales at the right base. Three blood cultures were positive for a staphylococcus. The patient was treated in Korea with multiple antibiotics and transferred to a hospital in Japan by June 10, 1955, where similar treatment was continued and finally he was evacuated to Tokyo Army Hospital. Just prior to transfer, he was receiving chloramphenicol and erythromycin.

Physical Examination: The patient was a well developed and well nourished white male. The temperature was 100° F; the pulse was 86 per minute; the respirations were 20 per minute; and the blood pressure was 120/80. There were no petechiae. The pupils were equal and reacted to light. Ophthalmoscopic examination was normal. The throat and neck were normal. Examination of the lungs revealed impaired resonance over the left base posteriorly with a pleural friction rub in this area. The heart was not enlarged. There was a regular rhythm. There was a grade III systolic murmur adjacent to the sternum in the fourth intercostal space. The abdomen and genitalia were negative. There was no edema or lymphadenopathy. The biceps and patellar reflexes were physiological.

Hospital Course: It was decided that chloramphenicol and erythromycin should be continued because of the apparent response. Chloramphenicol was given, 1 gram every six hours, and erythromycin was administered, 200 mg. every six hours. On this regimen, the fever was low grade in character until August 29, when the temperature spiked to 102.4° F. Five blood cultures were taken and the patient was started on penicillin, 1,000,000 units every two hours. All of these cultures were positive for a hemolytic staphylococcus, coagulase-positive, which was sensitive to erythromycin, streptomycin, chlortetracycline, chloramphenicol, oxytetracycline, bacitracin, and neomycin, and resistant to penicillin and polymixin B. On September 2, the temperature spiked to 103°, and on September 3 to 104°. At this time, streptomycin, 1 gram twice a day, and oxytetracycline, 500 mg. every six hours, were added to the treatment. On the combination of penicillin, chloramphenicol, erythromycin, oxytetracycline, and streptomycin, the patient became afebrile. On September 11, the oxytetracycline was discontinued, and on September 12, the chloramphenicol and erythromycin were stopped because of vomiting. On September 15, the streptomycin was reduced to 1 gram twice a day every second day. Erythromycin was restarted and penicillin was continued. On November 14, penicillin and streptomycin were stopped and on

November 21 erythromycin was discontinued. The patient remained afebrile and was returned to duty December 15, 1955.

Radiographic Studies: The chest x-ray of August 12, 1955, (Fig. 4) showed a confluent



Figure 4.

irregular area of infiltration in the lower third of the left lung which measured 3 by 5 cm. Just above this, there was a smaller lesion which measured 1 by 1.5 cm. In the right base, near the costophrenic angle, there was an ill defined infiltration measuring about 3 cm. in diameter. The x-ray of August 22 demonstrated that the area of pulmonary infiltration in the base of the right lung had cleared and there was a residual linear scar. The two areas of infiltration in the left lung showed some clearing. The film of August 29 showed the residual scar still present at the right base. There had been progressive clearing of the lesions at the left lung base. The chest x-ray of September 26, (Fig. 5) showed that the previously decribed densities in both lung bases had cleared except for slight linear scarring. A new lesion was present in the right upper lobe at the level of the first anterior interspace. There was present an area of increased radiolucency in the middle of this lesion which suggested cavitation. The film of October 20 showed almost complete clearing of the previously described lesions. The chest x-ray of November 29 was clear.

DISCUSSION

The pathogenicity [9] of the staphylococcus *(Micrococcus pyogenes)* can be determined by its reaction to the coagulase



Figure 5.

test. A loopful of bacteria from a twenty-four hour culture is added to 0.5 ml. of a human or rabbit plasma. This is incubated for three to eight hours at 37° C. A coagulum will be formed with the pathogenic strains only. The pathogenic strains produce an antigenic factor which, through the intermediary of a plasma activator, causes the conversion of fibrinogen to fibrin. It has long been taught that staphylococci which form orange colonies surrounded by a zone of hemolysis on blood agar plates are pathogenic. This is generally true, but highly invasive strains may appear as nonhemolytic white colonies. Bateriophage sensitivity has been utilized as an aid in differentiating the individual strains of staphylococci. Fisk [10] demonstrated that phages derived from coagulase positive strains did not produce lysis of coagulase-negative strains. Phage typing [11] has been used extensively in tracing the origin and spread of staphylococcal infections. For example, Hobbs [12] demonstrated that the staphylococci isolated from several cases of breast abscess were of the same phage type as those from the throat of a nurse who was a carrier.

The cases presented illustrate the pul-

monary findings that may occur in staphylococcal septicemia. The primary site in each is not certain. The second patient was a morphine addict and had a murmur compatible with a ventricular septal defect so that he could easily have had a bacterial endocarditis. The first case might have had a staphylococcal pneumonia as the original source of the septicemia, since his first symptoms were referable to the respiratory tract. Staphylococcal pneumonia is usually not primary but may complicate other acute or chronic respiratory disease. Finland [13] reported a group of staphylococcal pneumonias which occurred in an influenza epidemic. There are other clinical pictures which can arise in staphylococcal disease besides the classical abscesses which occurred in our patients. Spink [9] has emphasized that certain strains elaborate an exotoxin which can cause nausea, vomiting, diarrhea, cyanosis, jaundice, convulsions, respiratory and circulatory failure. He has reported a case of a healthy young adult who died within fifty-one hours from an infected laceration. Certain strains can also produce a dermonecrotoxin which may cause extensive tissue necrosis. We are all familiar with the enterotoxin which results in staphylococcal food poisoning.

TREATMENT

In managing the severe forms of staphylococcal sepsis, several procedures should be followed. Before treatment, one should obtain adequate material in the form of blood, sputum, or pus for culture and sensitivity studies. As soon as this is done, treatment should be immediately instituted. Penicillin is still the most effective agent in the treatment of sensitive staphylococci. For this reason, initial treatment of severe infection should always include penicillin. The dosage should be adequate. Spink [9] advocates 500,000 units every four hours intramuscularly and, in addition, 500,000 units intravenously in 10 ml. of saline every twelve hours for the first forty-eight to seventy-two hours. The first two patients were given 1,000,000 units every two hours, intramuscularly. Spink also feels that this initial treatment should include another agent. He recommends bacitracin in patients with good renal function in dosage of 20,000 units every six hours. Since bacitracin is nephrotoxic, in the patients with seriously impaired renal function he advocates erythromycin in dosage of 2 to 3 grams a day. Once the sensitivity studies have returned, you can switch to a combination of antibiotics which may best fit these studies. Fisher [14] and associates have reported on 38 cases of staphylococcal endocarditis which occurred from 1933 through 1953. Of the group, 13 occurred from 1950 through 1953, and of these 54 per cent recovered. An interesting fact is that during this period when other investigators were reporting penicillin resistance, most of the organisms isolated were sensitive to this antibiotic. In Fisher's cases, no patient was cured whose treatment did not include penicillin. Three of Fisher's patients were found to be resistant to less than 12.5, 62.5 and 50 units of penicillin respectively, yet massive doses of penicillin plus erythromycin led to favorable outcome in each. One of these did not respond until penicillin was added. For these reasons, Fisher and his associates feel that regardless of the laboratory findings, penicillin should always be included in the therapeutic regimen. In this we agree, providing that the patient is not allergic to this drug.

A new antibiotic has become available since the treatment of our patients, which seems to be quite effective in staphylococcal infections. It is novobiocin which has been isolated from cultures of the actinomycete, *Streptomyces niveus*. [15] .The recommended oral dosage for infections of moderate severity is 500 mg. every six hours. The most common side reactions reported have been allergic dermatitis, which may be associated with fever.[16] Mild diarrhea has occurred. Thus far, no damage to the kidneys or liver has been reported. Martin [17] and associates noted two cases of leukopenia but differential

counts remained normal and the abnormality did not persist with continued administration of novobiocin. David and Burgner [18] reported two cases of mild neutropenia. This subsided with discontinuance of the drug. Another new antibiotic, spiramycin [19] is reported to be effective in most strains of resistant staphylococci.

The third and very important step in the treatment of staphylococcal infections is the adequate surgical management of all suppurative and necrotic tissues or cavities. If this is not done, it will contribute to the development of resistant organisms and serve as a constant source of infection. The fourth thing to remember in the treatment of staphylococcal infection is prolonged therapy. Once a staphylococcal septicemia is under control, treatment should be continued for at least six to eight weeks longer because fatal relapse may follow early cessation of treatment.

It should be mentioned that although short courses of adrenocorticotropic hormone and corticosteroids have been advocated [20] for certain critically ill patients with various infections, they should only be used in staphylococcal disease with very adequate antibiotic coverage. These hormones decrease the inflammatory reaction and thus might increase the chance of spread of a staphylococcal infection. Fisher [14] has emphasized the danger of concomitant or prior treatment with these drugs in staphylococcal infections.

In conclusion, it should be emphasized that unless all of us are more conservative in the unnecessary use of antibiotics, more and more resistant bacterial strains will result. Erythromycin and novobiocin should be reserved for the more resistant staphylococci. Since the hematologic complications of chloramphenicol were demonstrated a few years ago, its decreased use may make it also available in the treatment of the more resistant organisms.

SUMMARY

Two cases of staphylococcal septicemia with pulmonary involvement and successful treatment are reported. The bacteriology and symptomatology of staphylococcal infections have been briefly reviewed. It is emphasized that treatment of severe staphylococcal infections should include four procedures. Before treatment, adequate culture material should be obtained. Immediate massive antibiotic treatment is advocated. Surgical management of all suppurative and necrotic tissues or cavities should be instituted. Once a staphylococcal septicemia is under control, treatment should be continued for at least six or eight weeks. The danger of corticotropin and the corticosteroids in staphylococcal disease has been emphasized.

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COMPULSORY SOCIAL SECURITY INSURANCE COVERAGE FOR PHYSICIANS VERSUS THE JENKINS-KEOGH BILL

In the coming session of Congress and its usual tumult, there will be consideration again of compulsory Social Security insurance coverage for physicians, and also, of the more desirable Jenkins-Keogh bill. These bills will represent two opposite points of view in which all physicians are vitally interested.

A satisfactory sampling of opinion among the doctors of the nation has indicated that the majority, in the proportion of approximately 3 to 2, are opposed to this additional tax. The reasons why physicians should oppose the tax have been discussed in these columns [1, 2] before and have been comprehensively covered in articles of *The Journal of the American Medical Association*.[3-5]

After due consideration is given to the facts of the Social Security insurance program, it is seen that the majority of physicians have due cause to oppose it. To paraphrase the comment of a famous French diplomat who is reported to have said—that the Holy Roman Empire was neither holy, nor Roman, nor an empire—the Social Security insurance program is neither social, nor secure, nor insurance. It is not social because it is primarily political. It is not secure because it is subject to any action by any Congress every two years; and it is not insurance because the individual covered receives benefits according to the provisions of an inherently political Congress, and not according to the equity of his payments.

According to the estimate of actuaries, the Social Security program has already assumed obligations equal to the national debt of the United States. The receipts under the operation of the law, at present, are estimated as 6.7 billion in contributions and 500 million in interest. The expenditures will be 6.1 billion. The trust fund exists only as bonds of the United States government. Both the contributions and the bonds are supported only by taxes. The income and the outgo are almost balanced now, before the new provisions and expensive commitments have had their effect and at a time when we are experiencing our highest taxation and greatest prosperity in history. In any period of national economic depression of major degree, the demands for Social Security money will go up and the sources of income will go down. This can only be met by increase in taxes, which would be politically unpopular and economically depressing. The obvious adjustment is that a Congress influenced primarily by politi-

cal considerations will make reduction in benefits. On the other hand, the plans of real insurance are made in such a manner as to anticipate and meet just such contingencies in their contractual responsibilities.

In a masterful analysis of Social Security insurance law, Webster and Coffey [4, 5] have shown that in the insurance market the physician can secure for himself, in comparison with the most favorable applications of the Social Security law, far better coverage. Commercial insurance would provide from two to nine times more protection, than he would have under the law. These figures do not agree with those given by a certain group within the profession, who wish for compulsory Social Security for doctors.

It is clear from the operations of the law that physicians in the older age groups—who, incidentally, have been those who opposed compulsory inclusion of doctors—are the ones who would benefit the most from this type of pension coverage, and that those who have been most anxious to include physicians are in the younger groups who would stand to lose the most in their long years of payment. Since six out of seven self employed physicians do not retire, the tax imposed upon them by compulsory coverage would be unjust and unreasonable. Since the average age at death of physicians is just under seventy, only a few would be able to enjoy full benefits of the law's provisions while still working at 72.

The Jenkins-Keogh bill would if enacted provide insurance coverage relieving a tax injustice and would meet the needs of physicians far better than compulsory coverage under the law. The effect of its operation would allow the individual to set aside money for pension purposes in the years of his greatest earnings, and pay tax on these earnings in the years of his declining income. At the present time, millions of individuals in industry are enjoying what amounts to this considerable tax advantage. In other words, Keogh states that in our existing federal tax laws there is an inequity and discrimination against self employed individuals which cannot be denied. Enactment of the Jenkins-Keogh bill would bring about a situation in which it would no longer be an economic sin to be self employed. This bill in the past has received lip service from many individuals in Congress from whom support has been sought, and it then dies in Committee. The objections to it are wordy but may be simplified in two statements: It is estimated it would cause a loss of approximately 150 million dollars in annual income tax revenue; and the other is that it would be doing the physicians a favor.

The answer to the first objection is that a mere 150 million dollars is a drop in the bucket compared to what a prodigal government wastes in improvident welfare schemes over the globe. Even if such a loss was significant this money is being unjustly squeezed from the taxpayers supplying it. The second objection has no answer.

The prospects of the Jenkins-Keogh bill passing this year are better than formerly. The American Bar Association has undertaken a vigorous campaign, with which it is of great interest to physicians everywhere to cooperate and support by all means possible. The benefits of the law will accrue to many million self employed besides the 160 thousand doctors, who have been advocating such provisions.

The coming Congress, therefore, represents an opportunity to the physicians to make clear their opposition to compulsory Social Security insurance coverage and their support of the equitable and desirable Jenkins-Keogh bill.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

INTERESTING FACTS FURNISHED BY THE A.M.A. WASHINGTON OFFICE

Part I

(July 1, 1956, to June 30, 1957)

FEDERAL MEDICAL-HEALTH SPENDING FOR FISCAL YEAR 1957

This is our fourth annual report on the Federal medical budget. To the extent we can make it so, it is a factual, objective study of how much the U. S. Government is spending this fiscal year in all health and medical fields. We are dealing with money that has been appropriated and currently is available to be spent. This SPECIAL REPORT is based on the actual appropriations, and on information obtained directly from Federal agencies and departments.

When talking in billions of dollars, it is often difficult to make the totals meaningful. However, here are some conclusions:

1. What the U. S. is spending in health fields alone represents an average cost of $15.17 per man, woman and child.* Incidentally, it is costing each of them $1.78 more this year than last.
2. If only wage-earners are considered,* they will be paying on the average $38.72 each to finance the Federal government's health-medical operations. That is $4.40 more than they paid last year.
3. The average family * will be paying $54.61 this year for the U. S. government's health-medical activities.
4. Even in an overall Federal budget of $61.2 billion, the total health cost is not insignificant. It is a billion dollars more than the cost of running the Commerce Department, half a billion more than all Agricultural Department expenses and six times Interior Department's budget.
5. Mostly because of spectacular increases for research, health programs of the Department of Health, Education, and Welfare this year will cost half again as much as they did last year.
6. For the first time since World War II, medical costs of Veterans Administration top the list, passing the Defense Department. A close third is the Department of Health, Education, and Welfare.

This SPECIAL REPORT is based on spending alone. We do not undertake to evaluate the many individual programs. Obviously many of them are necessary just to maintain this country's unsurpassed public health standards. Others undoubtedly will pay rich dividends in procedural and scientific discoveries. Some probably could be questioned But the only purpose of this study is to show exactly what they cost.

* Population, family-size and employment figures from Census Bureau.

MEDICAL-HEALTH BUDGETS OF FEDERAL DEPARTMENTS AGENCIES AND COMMISSIONS FOR THIS FISCAL YEAR

VETERANS ADMINISTRATION

(This Year: $825,024,300 — Last Year: $790,185,800)

In-Patient Care in VA Hospitals $619,614,000

(Last year: $615,869,000)

VA's largest single medical appropriation covers in-patient care in 173 VA hospitals and provides for an average of 121,865 beds a day. At present VA reports daily patient load at 111,540, just over 91% of capacity. The appropriation includes salaries of physicians and other personnel, medical rehabilitation of veterans, dietetic and nursing services, social services and special services, such as recreation and transportation of veterans.

Out-Patient Care $82,638,000

(Last year: $85,471,200)

The bulk of this appropriation is for out-patient care in about 100 VA clinics. The remainder is earmarked for fees to physicians ($7,738,000) and dentists ($8,415,000) under the home-town care program.

Modernization and Replacement Construction $51,635,000
(Last year: $30,000,000)

This amount is for work on existing units costing over $250,000 a project, and equipment for new units. The money is available until expended. (See Major Alterations and Improvements item below for smaller projects.)

Domiciliary Care $29,319,000
(Last year: $23,062,500)

Domiciliary care is being provided in 17 VA facilities for about 17,000 veterans who, while incapacitated for employment, are not in need of full hospital care. VA also makes payments to 30 state homes in approximately 30 states with a daily patient load of around 9,000. Payments this fiscal year are estimated at $5,888,000 (under a new law, P. L. 613, 83rd Congress, Federal contributions to these homes were raised from a maximum of $500 to $700 a year per patient).

Contract Hospitalization $13,967,000
(Last year: $15,237,300)

This appropriation finances an average daily patient load of 3260 veterans in Federal hospitals other than VA and in state and municipal hospitals. Patients in Federal non-VA hospitals are estimated at 1345 and in non-Federal hospitals, 1915. Psychotic cases make up the largest single category of contract cases.

Medical Administration $7,300,000
(Last year: $7,422,000)

To operate the VA Department of Medicine and Surgery in the Washington central office and the seven area medical offices; included are salaries, travel and like expenses.

Medical Research $10,990,300
(Last year: $ 6,381,600)

For research, mostly in VA hospitals. The breakdown: general medical and surgical research, $5,870,000; atomic medical research, $2,000,000; prosthetics testing, $990,300; neuropsychiatric, $1,250,000; tuberculosis, $780,000; other, $100,000.

Major Alterations, Improvements and Repairs $4,533,000
(Last year: $3,900,000)

For alterations, improvements and repairs to VA clinics and domiciliaries (costing less than $250,000 per project).

Supply Depot Operations $1,628,000
(Last year: $1,642,200)

For maintaining and operating supply depots handling the purchase, shipping and storage of medical supplies and equipment used by the Department of Medicine and Surgery.

Medical Education and Training $1,400,000
(Last year: $1,200,000)

For VA training programs for physicians and other VA personnel, in medical specialties and auxiliary services.

Medical Care—Philippine Veterans $2,000,000
(Last year: not reported)

Until 1960 the U. S. Government will contribute for the care of Philippine veterans.

DEPARTMENT OF DEFENSE

(This Year: $790,105,000 — Last Year: $818,104,500)

**Army Medical Services* ..... Approx. $290,000,000
(Last year: $300,000,000)

The estimated cost includes expenses normally associated with the operation of military hospitals and dispensaries, military and civilian salaries, medical supplies and equipment, utilities, communications, transportation, travel subsistence, maintenance and repair of buildings and grounds, expenses for construction, medical education and training, medical research and preventive medicine.

**Air Force Medical Services* ..... Approx. $223,000,000
(Last year: $286,000,000)

The estimated cost includes expenses normally associated with the operation of military hospitals and dispensaries, military and civilian salaries, medical supplies and equipment, utilities, communications, transportation, travel subsistence, maintenance and repair of buildings and grounds, expenses for construction, medical education and training, medical research and preventive medicine.

**Naval Medical Services* ..... Approx. $277,000,000
(Last year: $232,000,000)

The estimated cost includes expenses normally associated with the operation of military hospitals and dispensaries, military and civilian salaries, medical supplies and equipment, utilities, communications, transportation, travel subsistence, maintenance and repair of buildings and grounds, expenses for construction, medical education and training, medical research and preventive medicine.

Office, Asst. Secretary of Defense (Health & Medical) ..... Approx. $105,000
(Last year: $104,500)

For salaries, travel and administration of this office, and for travel expenses and consultant fees for the Defense Department Civilian Health and Medical Advisory Council.

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* All figures are estimates because appropriations are not broken down into categories of medical expenditures. Anticipated reduction in the Department of Defense medical program during Fiscal Year 1957 is primarily attributable to more effective joint utilization of the facilities, fewer personnel assigned to operation and a lower level of hospital and dispensary construction. Reductions, however, have been partially offset by an estimated expenditure of $41 million during Fiscal Year 1957 for the Dependent Medical Care Program.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
(This Year: $772,661,800 — Last Year: $526,935,400)

Division of Hospital Facilities $126,381,000
(Last year: $112,250,000)

This division administers the Federal aspects of both the original and expanded Hill-Burton programs. The total appropriation is divided into the following four categories:

Hill-Burton Original Program $102,800,000
(Last year: $ 88,800,000)

This appropriation, allotted to the states on the basis of population and per capita income, assists in the financing of new hospitals and related health facilities construction under the original Hill-Burton program. To date Federal funds have partially financed approximately 2,869 projects, including nearly 132,096 hospital beds, and 636 public health centers, 18 state health laboratories and approximately 100 nurses homes and training facilities. To date Federal contribution represents $762,000,000 and is matched by sponsors' funds amounting to $2,370,000,000.

Medical Facilities—Category Program $21,000,000
(Last year: $21,000,000)

The total allotted to the states this year on a population-per capita income formula will assist in the financing of new construction under the 1954 amendments in four categories as follows: $6,500,000 for hospitals for the chronically ill and impaired; $6,500,000 for diagnostic centers, or diagnostic and treatment centers; $4,000,000 for nursing homes; and $4,000,000 for rehabilitation facilities. As under the original program, the Federal share may range from one-third to two-thirds of the total project cost. As of July, 1956, there was approved a total of 204 projects divided among the four categories as follows: Facilities for chronically ill, 42; Diagnostic-treatment centers, 77; Nursing homes, 42; and Rehabilitation facilities, 43.

Hill-Burton Administrative Expenses $1,381,000
(Last year: $1,250,000)

This appropriation is used for salaries and expenses for the hospital survey and construction program for Washington, D. C., and eight regional offices at the Federal level.

Research $1,200,000

(Last year: $1,200,000)

Authorized in 1949 but not appropriated until 1955 was this item for research, experiments and demonstrations on utilization of hospital services, facilities and resources. The bulk of the money is earmarked as grants to states, universities, hospitals, hospital associations, professional associations, and community organizations and a small amount for direct research by Public Health Service.

(Continued in January issue)

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

COURSES IN THE TREATMENT OF ACUTE TRAUMA AVAILABLE TO PHYSICIANS

It has come to our attention that the Army Medical Service will conduct courses in "Surgery in Acute Trauma" at the Brooke Army Hospital, Brooke Army Medical Center, Ft. Sam Houston, Texas, May 6-8, 1957, and the William Beaumont Army Hospital, Ft. Bliss, Texas, April 1-3, 1957. Similar courses will be held in other parts of the United States, but no others here in the Southwest. Civilian physicians interested in attending either of these courses may apply direct to the Commander of the Hospital where the course is to be conducted.

Those who have attended courses similar to these, given at Walter Reed Medical Center, Washington, D. C., and at Brooke Army Hospital, Ft. Sam Houston, Texas, cannot speak too highly of them. It is expected they would be of great interest to all physicians called upon to treat injuries, and to all those with Civil Defense responsibilities.

SURGICAL HISTORY VOLUMES APPEAR

The fourth volume in a series of 14 on the history of surgery during World War II appeared in October to be followed by an additional volume before the first of the year. The surgical volumes are part of the 40 odd volume work entitled Medical Department, United States Army in World War II. Editorial office for the surgical volumes of the medical history is in Tulane School of Medicine.

The title which has just appeared is Volume I on General Surgery which covers shock, resuscitation, anesthesia and abdominal injuries, and has a final chapter on the closure of colostomies. The title about to appear is Orthopedic Surgery in the European Theater of Operations.

Chairman of the Advisory Editorial Board for Surgery is Dr. Michael E. DeBakey, formerly Associate Professor of Surgery, Tulane University School of Medicine, and now chairman of the Department of Surgery, Baylor University College of Medicine. Associate editor is Miss Elizabeth M. McFetridge.

Other surgical volumes which have appeared are on the physiologic effect of wounds, published in 1952, and hand surgery and vascular surgery, both published in 1955. Three surgical volumes now in press or in preparation for production are Orthopedic Surgery in the Mediterranean Theater of Operations, Ophthalmalogy and Otolaryngology, and Cold Injury. This last is believed to be the most inclusive discussion of this type of trauma ever to be published. Two volumes on neurosurgery are now in active preparation and are expected to be ready for publication in 1957.

The entire 40 odd volume series prepared under the direction of Major General S. B. Hayes, the Surgeon General, United States Army, will contain in addition to the surgical volumes, 7 on preventive medicine, 4 on internal medicine,

2 on neuropsychiatry, 8 on administrative subjects, and the remainder on miscellaneous subjects. The volumes published to date include 1 administrative volume, 2 preventive medicine volumes, and a dental volume, in addition to the 4 surgical volumes.

The Government Printing Office is publishing the entire work.

POSTGRADUATE COURSES ON DISEASES OF THE CHEST

The Council on Postgraduate Medical Education of the American College of Chest Physicians will present the following Postgraduate Courses on Diseases of the Chest during the period January - April, 1957:

Vanderbilt University, Nashville, Tennessee
January 14 - 18
Mark Hopkins Hotel, San Francisco, California
February 25 - March 1
Bellevue-Stratford Hotel, Philadelphia, Pennsylvania
April 1 - 5

Tuition for each course is $75. The most recent advances in the diagnosis and treatment of chest diseases — medical and surgical — will be presented.

Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

NEWS ITEM

Dr. Benjamin O. Morrison attended the Annual Convention of the American College of Gastroenterology, at The Roosevelt in New York City, October 15-20, 1956.

ASPIRIN'S ANTI-INFLAMMATORY ACTION STRESSED IN RHEUMATOID ARTHRITIS

The anti-inflammatory activity of aspirin warrants its continued use in large dosages in the treatment of rheumatoid arthritis, according to an editorial in **Southern Medical Journal** (49: 304, 1956).

Aspirin's well-known analgesic and antipyretic effects supplement its anti-inflammatory action in symptomatic management of the arthritic patient, the journal states. In large doses, however, its primary activity is anti-inflammatory, which also accounts for its major therapeutic usefulness in treating rheumatic fever. Gastric symptoms "are rarely of sufficient severity to require a stoppage of the treatment."

Results of the two-year study by the Joint Committee of the Medical Research Council and Nuffield Foundation (Great Britain) are cited as evidence of aspirin's therapeutic effectiveness in early cases of rheumatoid arthritis. A comparison of two series of patients, one treated with cortisone and the other with aspirin, revealed "remarkedly little to choose between cortisone and aspirin in the management of this group of patients." Evaluations were made in terms of joint tenderness, strength of grip, tests of dexterity and clinical assessments of the disease's activity.

Aspirin seems to have an ACTH-like effect, the editorial says. It points to a number of experiments showing that aspirin stimulates the pituitary gland to put out adrenocorticotropic hormones, thereby stimulating adrenal cortical activity.

CHILDREN UNDER FIVE RESPOND WELL TO POLIO VACCINE

Polio Vaccine appears to work as well in infants and preschool children as it does in school children, providing they receive at least two and preferably three inoculations, a recent Michigan study has shown.

Field trials of the Salk polio vaccine were carried out in 1954 among first, second and third grade children. Although the age range was extended greatly in 1955, little information has been obtained about responses in different age groups.

Since most immunization programs are begun in the early months of life, information about the response of infants to the polio vaccine is important, Gordon C. Brown, Sc.D., and Donald C. Smith, M.D., Ann Arbor, Mich., said.

They found that three inoculations evoked a satisfactory response in infants and in children one to five years old. Two inoculations appeared to be less effective and one injection in infants was definitely inadequate, they said in the June 2 Journal of the American Medical Association.

A booster inoculation six months after the first series raised the number of antibodies in the children's blood regardless of how many initial inoculations they had, or how they responded to the first shots. Even those who did not respond to the original vaccination did develop antibodies after the booster shot.

INCREASE IN SCURVY CAUSED BY BABY FEEDING CHANGES

The abandonment of "pot liquor" and "milk from the family cow" as traditional baby foods — and neglect of daily orange juice — were blamed for an increase in scurvy among infants in Tennessee.

Dr. Calvin Woodruff said in the June 2 Journal of the American Medical Association that the number of cases seen at Vanderbilt University Hospital, Nashville, had jumped from eight in 1926-34 to 45 in 1950-54. From 1926 to 1954 there was a total of 103 cases.

Scurvy, caused by a deficiency of ascorbic acid, occurs most frequently between the ages of seven and 11 months. It can produce bone deformities, and its symptoms sometimes are like those of poliomyelitis.

Ascorbic acid can be obtained from several sources, including orange juice (probably the best source), fresh unpasteurized milk, tomato juice, and even "pot liquor," the water in which green vegetables and fat meat have been boiled.

The abandonment of these old feeding customs and the sterilization of milk—without substituting anything for these sources of ascorbic acid—have resulted in the increase of scurvy.

MAGNESIUM SALTS MAY OVERCOME DELIRIUM TREMENS

Magnesium salts—used to prevent "grass staggers" in cattle after early spring grazing—may also help overcome delirium tremens in chronic alcoholism, according to a report by the American Medical Association's council on foods and nutrition.

The normal adult human body contains less than an ounce of magnesium, but a deficiency can produce muscle twitching, excessive nervousness, tremor, delirium, and even convulsions, Dr. Edmund B. Flink, Minneapolis, said in the report of the council in the April 21 Journal of the American Medical Association.

The human symptoms are similar to those produced in cows, calves, and horses suffering from "grass staggers," a magnesium deficiency illness usually occurring one to two weeks after the livestock begins grazing on new spring grass. Symptoms of "grass staggers" include nervousness, restlessness, grazing away from the herd, lack of appetite, muscle twitching, unsteady gait, spreading of the hind limbs, gnashing of teeth, a wild look, and constant lowing.

Chronic alcoholism appears to be an important cause of magnesium deficiency symptoms in humans, Dr. Flink said. The symptoms can also result from prolonged intravenous administration of magnesium-free fluids.

6,000 ALIEN PHYSICIANS TRAINING IN U. S.

More than 6,000 foreign physicians are in the United States this year to complete their professional training as interns or residents, while more than 1,700 Americans are studying at foreign medical schools.

A survey of foreign physicians in the U. S. was made by the Institute of International Education and the American Medical Association, and was reported in the May 26 Journal of the A.M.A. by Dr. James E. McCormack and Arthur Feraru, New York.

The study showed that 1,730 Americans are studying in 26 different countries. Switzerland, Italy, Canada, Netherlands and Belgium each have more than 100 American students. The University of Bologna (Italy) has the largest number, 243 American medical students. The next five are the University of Geneva (Switzerland), 215; University of Lausanne, (Switzerland, 159; McGill University (Canada), 159; University of Leiden (Netherlands), 70, and University of Heidelberg (Germany), 54.

The 6,033 foreign physicians in the U. S. are training in 764 hospitals listed as approved for internships and residencies by the A.M.A.'s council on medical education and hospitals. This is almost a thousand more physicians than the 5,035 reported in 1954-55. Approximately 47 per cent first came here this year.

PILLS MAY SOME DAY REPLACE INSULIN INJECTIONS

A sulfonamide derivative which can be taken in pill form may some day replace insulin injections for certain types of diabetics, two Indianapolis physicians have reported.

Experiments with the drug, carbutamide, have been widespread in Germany and are now being carried on among several hundred diabetics in this country. Its exact role in the treatment of diabetes is still to be determined, but it appears to be helpful in some cases of the disease, the doctors said in the April 14 Journal of the American Medical Association.

On the basis of research done so far, it is unlikely that the drug will be on sale for some time. At present it is available only for experimental purposes. Many other products have been tested in the hope of replacing insulin injections but none have worked well enough.

Carbutamide (called BZ-55 by its German investigators) and a related compound, tolbutamide, which is also being tested, are classed with the germ-killing sulfonamide derivatives which have been shown to lower blood sugar levels. This lowering—essential to life for the diabetic—is now done through diet and by giving insulin injections to make up the shortage of insulin resulting from either poor production by the pancreas or destruction of insulin by some unknown agent in the body.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

RESPONSE TO THE WELCOME ADDRESS

By Mrs. Edwin R. Guidry

From the birthplace of the Woman's Auxiliary to the Southern Medical Association I bring you greetings upon the occasion of this golden anniversary of Southern and a "We're delighted to be here" response in the name of all the visiting auxiliaries to the welcome just accorded us.

I also bring you greetings from Mrs. Arthur A. Herold, our first lady of the Auxiliaries in

Louisiana and one of your past-presidents, who wants you to know that only her doctor's sternest orders prevent her from being with you on this occasion. Mrs. Wiley A. Buffington, another former Southern Auxiliary president, also wishes to be remembered to you and to extend her best wishes for a successful convention. It is a matter of great personal regret that our Alma, who so recently guided the Woman's Auxiliary to the Southern Medical Association through a successful year, is not able to be with us especially at the presentation of the George D. Feldner trophy later on today. From her too, I bring warmest greetings and best wishes for success.

You can see how humble I feel coming from such a distinguished line of active Southern Auxiliarites. When I attended my first Southern convention, which incidentelly was my very first auxiliary work after having had the honor of marrying a doctor, I remarked to a friend, "But they are all such important people!" Now after nearly twenty-five years of auxiliary work and a maturer viewpoint, I have come to realize how much I have to learn from such devoted auxiliary members and what a privilege it is to participate in your meetings.

We are all very fortunate in having the committee prepare such wonderful entertainment for us and I thrill to having my store of patriotism replenished with visits to the great buildings of state and to stand upon the hallowed ground of Mount Vernon.

I have taken the opportunity of swelling the Louisiana delegation with our three daughters and am so grateful to you for holding your convention in our nation's capital so that they too could share the privilege of visiting the "greats" of our beloved America.

And, in the not too distant future I look forward to welcoming you all to New Orleans.

Submitted by:
Mildred G. Carter, Chairman
Press and Publicity

The Orleans Club on St. Charles Avenue was the setting Wednesday, November 14, of the meeting and tea for members of the Woman's Auxiliary to the Orleans Parish Medical Society.

Fr. Edward Murphy, S.S.J., author of the "Scarlet Lily", was the guest speaker.

Guests of honor were the Hospital Auxiliary Presidents: Mms. Wiley R. Buffington, Eye, Ear, Nose and Throat Hospital; Lawrence D. Kavanagh, Hotel Dieu; Jules Davidson, Sara Mayo Hospital; Francis X. LeTard, Hospitality Club of Ochsner Medical Foundation; H. W. Lengsfield, Touro Infirmary; Walter P. Richardson, DePaul Hospital; Vincent Randazzo, Mercy Hospital, and Colles Stowell, Crippled Children's Hospital.

Hostesses for the afternoon were Mms. Dan W. Beacham, Walter F. Becker, Philips J. Carter, Julius T. Davis, Jr., Andrew V. Friedrichs, Abram O. Goldsmith, Frederick Fenno, William H. Harris, Sr., William H. Harris, Jr., George F. Sustendal, James T. Swindle, Charles R. Robinson, Norton W. Voorhies, Marshall Michel, and George Feldner.

The Auxiliary's next meeting will be held Wednesday, December 12.

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BOOK REVIEWS

Atlas of Roentgen Anatomy of the Skull; by Lewis E. Etter, M. D., with a Section on The Radiographic Anatomy of the Temporal Bone by J. Brown Farrior, M. D. and a Section on The Roentgen Anatomy of the Skull in the Newborn Infant by Samuel G. Henderson, M. D. and Louise S. Sherman, M. D., Springfield, Ill., Charles C Thomas, 1955, Pp. 215, illus., Price $12.50.

The primary purpose of this atlas is to clearly illustrate the detailed anatomy of the various component overlapping shadows seen in radiographs of the skull and face. To accomplish this the various bones of the skull were disarticulated and the individual bones were photographed and radiographed in the standard positions commonly used in making roentgenograms of the skull and face. The dry skull with the individual bone removed was then photographed and radiographed in a similar manner. After replacing the individual bone the same procedure was repeated.

The book contains seven sections. Section I contains general views of the skull. Section II shows general views of the skull with analysis of individual bone components. Section III deals with the paranasal sinuses and mastoids.

Section IV by Dr. Farrior is concerned with the radiographic anatomy of the temporal bone and petrous mastoid portion. Dr. Etter's plan of illustrating anatomy is followed here. Several beautiful colored illustrations are included in this section. The various component portions of the temporal bone have been separated for more detailed study.

Section V explores the orbits and optic foramina. In Section VI the maxillofacial components of the skull are discussed.

Section VII, by Drs. Henderson and Sherman illustrates the roentgen anatomy of the skull in the newborn infant. Because of the difficulty of obtaining roentgenograms on infants, these reproductions do not show the excellent detailed structure noted in the remainder of the book. The table covering the embryology of the skull is an important addition to this section.

In general the reproductions of photographs and radiographs are excellent. The detail shown is unusual and outstanding. The text is clear and

concise. A bibliography and an adequate index are included. This atlas should prove extremely valuable to all interested in this subject and a necessity to the radiologist and to the surgeon who operates on the skull and face.

J. N. Ané, M. D.

Stellate Ganglion Block; by Daniel C. Moore, M. D., Springfield, Illinois, Charles C Thomas, 1954, Pp. 280, Price $10.50.

This book has detailed descriptions and illustrations depicting various techniques of stellate ganglion block as well as a summarization of the complications and their treatment. It adequately documents the clinical indications and uses. The anatomical illustrations are excellent. It includes a short discussion of the physiology of the cervicothoracic portion of the sympathetic system. It is a very useful and handy reference for persons interested in the diagnostic and therapeutic utilization of stellate blocks.

Charles C. Abbott, M. D.

A Textbook of Medicine; Editors: Russell L. Cecil, M. D., and Robert F. Loeb, M. D., Ninth Ed., Illus., W. B. Saunders Company, Philadelphia, Penna., 1955, Pp. 1,786, Price $15.00.

This book remains outstanding as a textbook for medical students as well as postgraduate students of medicine. The ninth edition has been considerably improved by the addition of some of the recently delineated virus infections. The section on xanthomatosis is welcome and well done.

A mature opinion is given on the value of the various antibiotics in specific infectious disease. Such opinion was unavailable for the eighth edition.

The only deficiencies that this reviewer could find in the book were found in the section on diseases of the reticulo-endothelial system. The section on diseases of the spleen is quite confusing and the medical student would probably benefit by not reading this section. There is no discussion in the book of granuloma inguinale.

The book is most valuable as a frame of reference and as such is invaluable in the study of medicine.

Fred M. Hunter, M. D.

PUBLICATIONS RECEIVED

Grune & Stratton, N. Y.: The Person Behind the Disease, by Julius Bauer, M. D.

Lange Medical Publications, Los Altos, Calif.: Principles of Clinical Electrocardiography, by Mervin J. Goldman, M. D.

The C. V. Mosby Co., St. Louis: The Management of Fractures, Dislocations and Sprains, by John Albert Key, M. D., and H. Earle Conwell, M. D. (6th edit.); Practical Pediatric Dermatology, by Morris Leider, M. D.; Handbook of Pediatric Medical Emergencies, by Adolph G. DeSanctis, M. D., with the collaboration of Charles Varga, M. D., and ten contributors, (2nd edit.).

W. B. Saunders Co., Phila.: Clinical Examinations in Neurology, by members of the Sections of Neurology and Section of Physiology, Mayo Clinic and Mayo Foundation for Medical Education and Research.

Charles C Thomas, Publisher, Springfield, Ill.: Chemosurgery in Cancer, Gangrene and Infections, by Frederic E. Mohs, M. D.; Wire Brush Surgery in the Treatment of Certain Cosmetic Defects and Diseases of the Skin, by James W. Burks, Jr., M. S., M. D.

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Finland's[1] group of patients with acute infections of the urinary tract (principally *E. coli)* demonstrated excellent response, both clinical and bacteriological, following administration of tetracycline.

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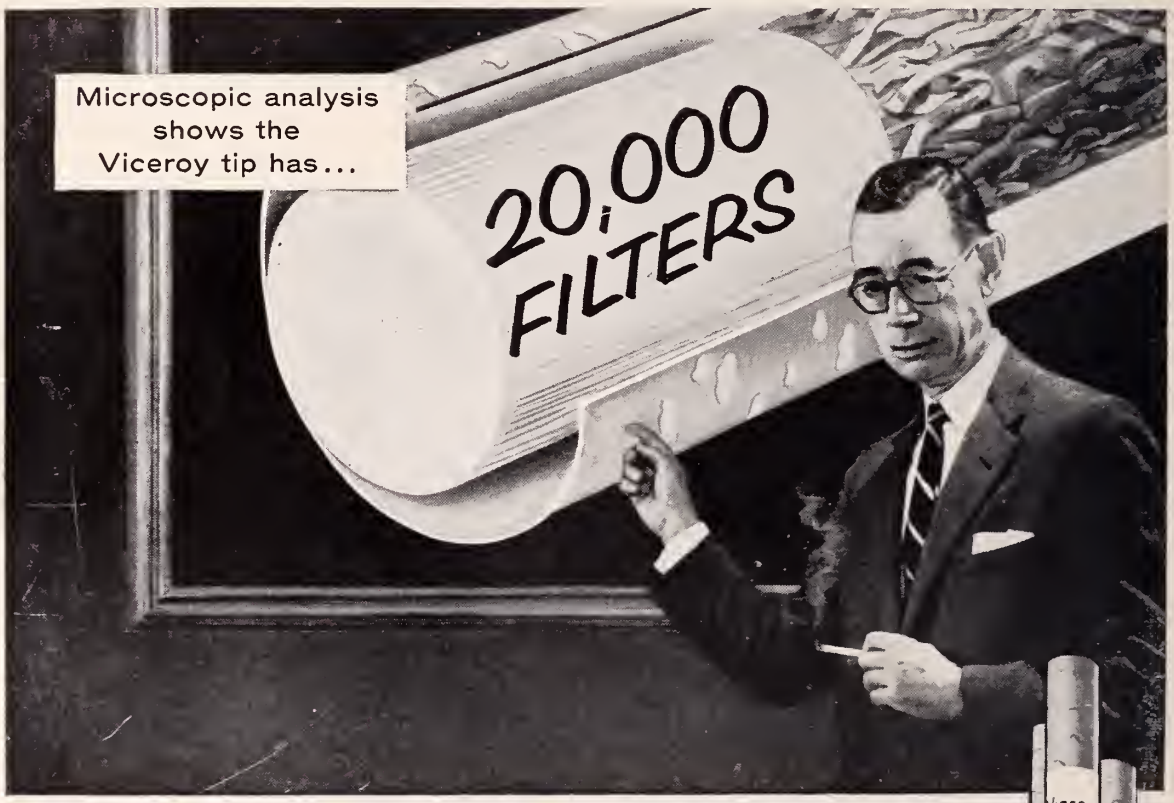
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1. Finland, M., *et al.: J.A.M.A.* 154:561 (Feb. 13) 1954.
2. Prigot, A. and Marmell, M. *Antibiotics and Chemotherapy* 4:1117 (Oct.) 1954.
3. Trafton, H. and Lind, H.: *idem* 4:697 (June) 1954.
4. English, A., *et al.: idem* 4:441 (April) 1954.

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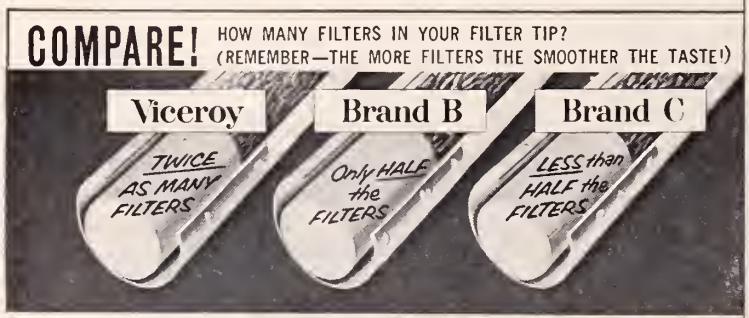
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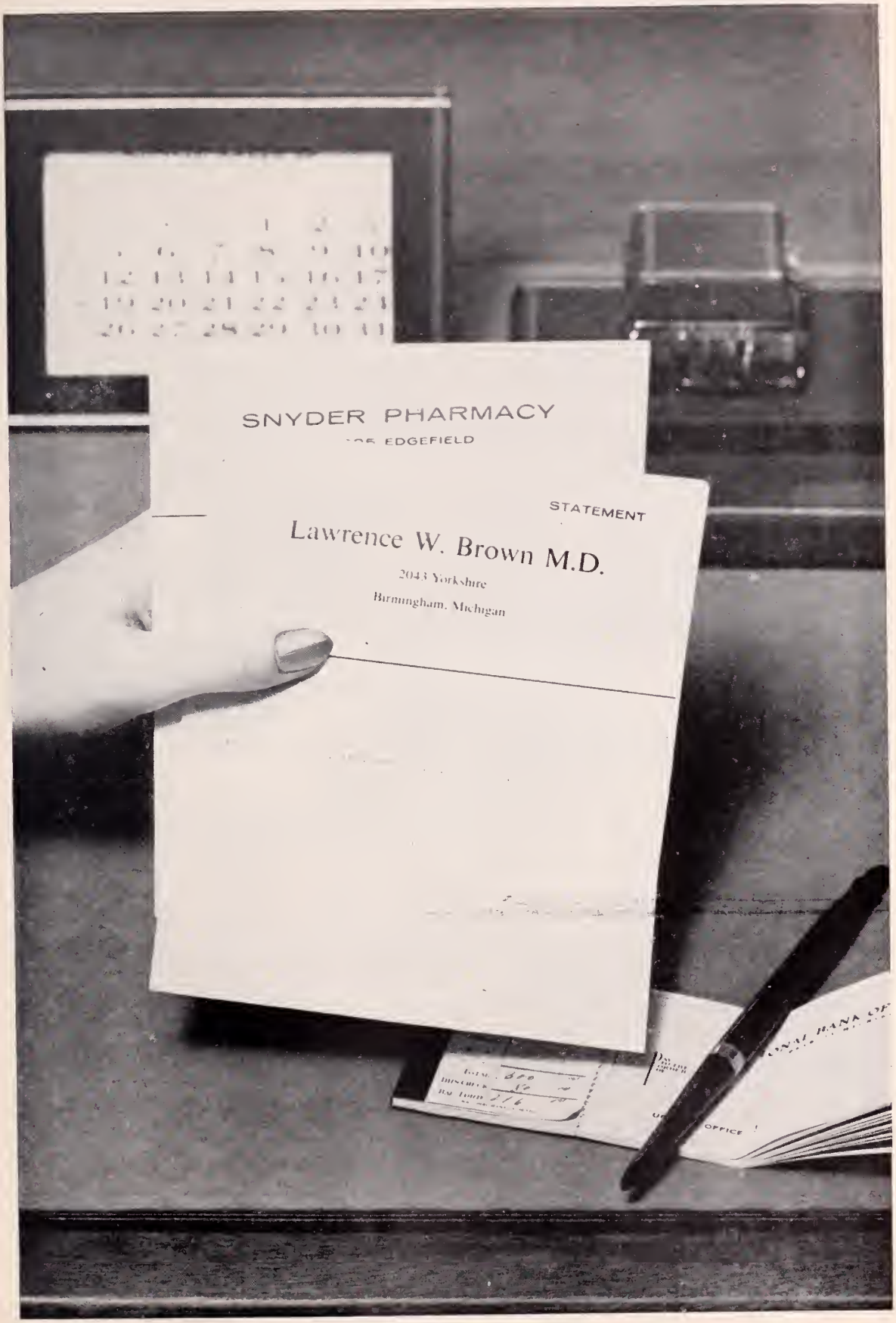
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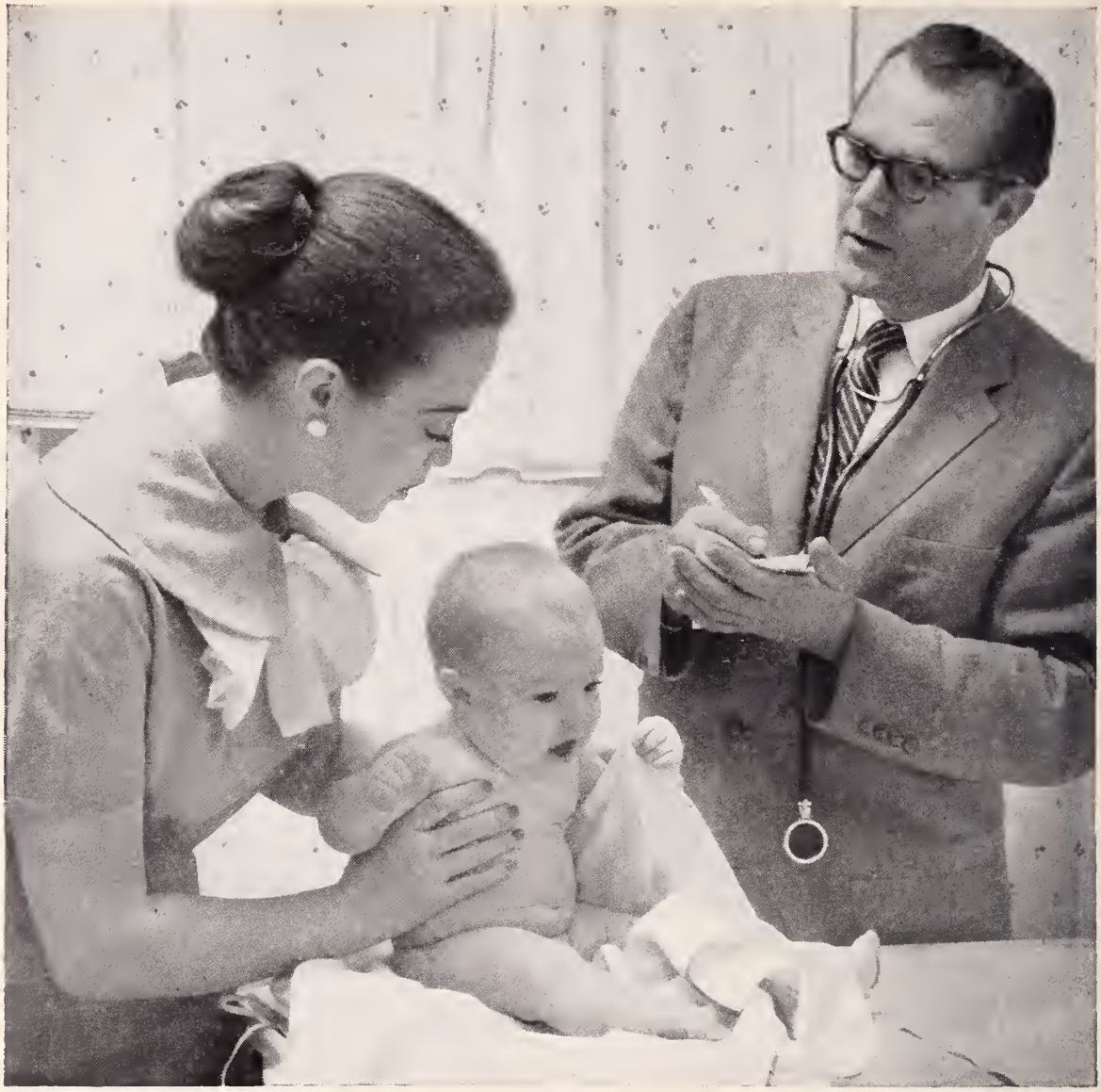


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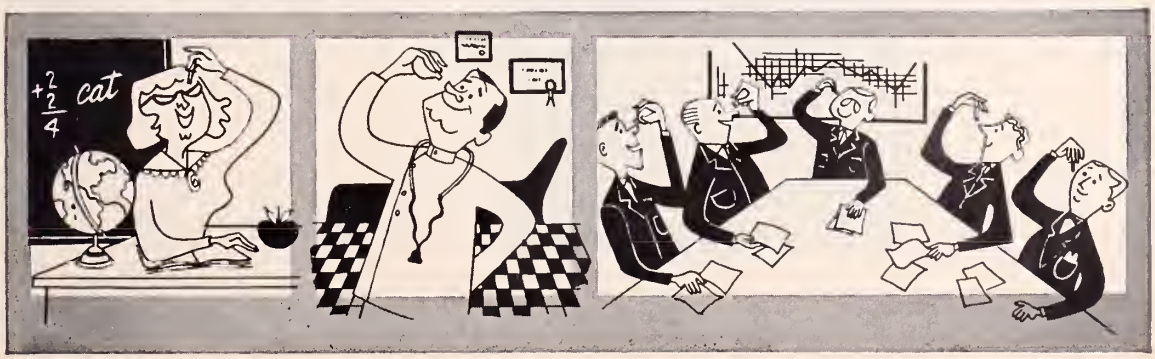
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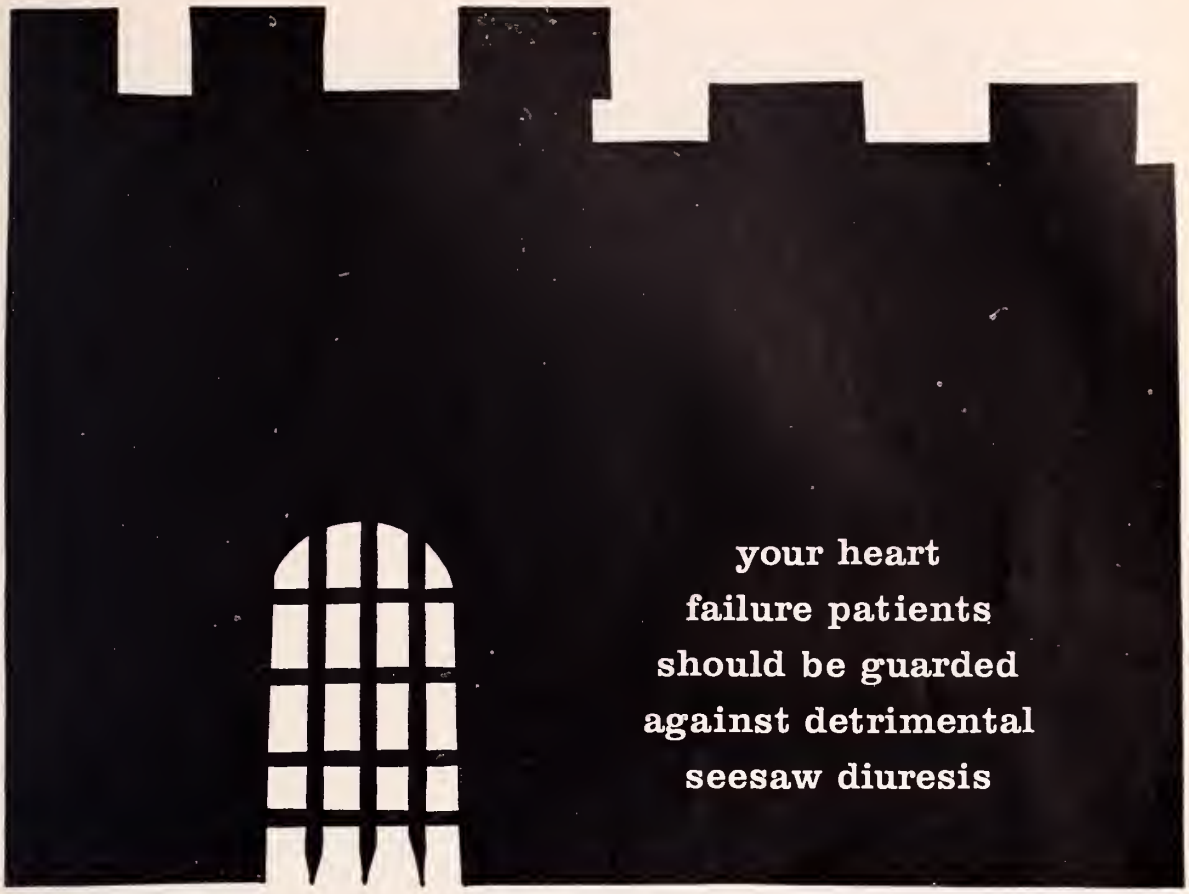
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better tolerated...
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dextrogen®



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Less allergenic because special heat treatment decreases the likelihood of protein absorption before reduction to amino acids.

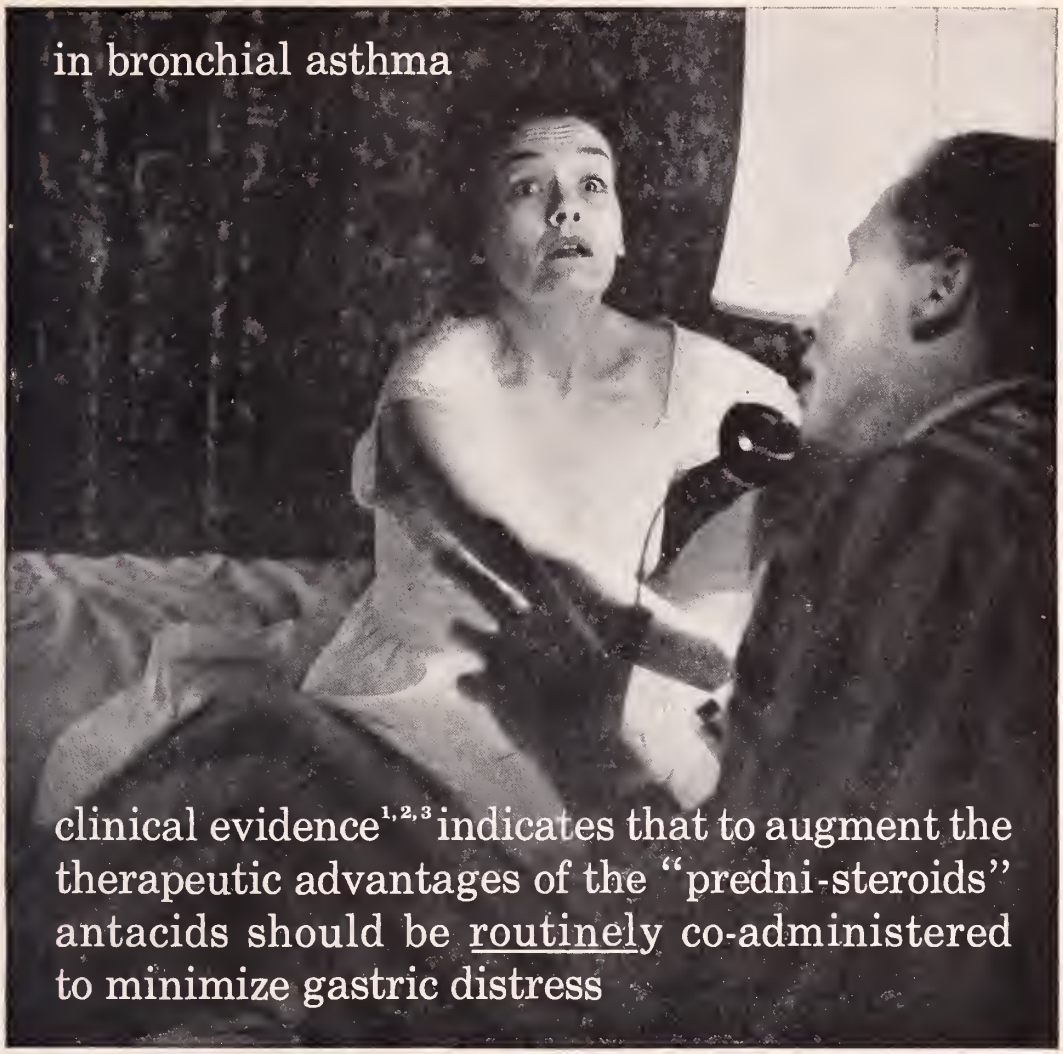
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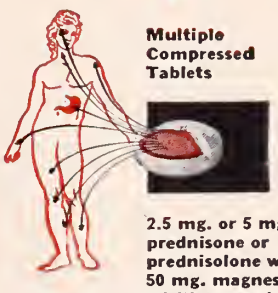
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'Co-Hydeltra'
(Buffered Prednisolone)



Multiple Compressed Tablets

2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

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(Buffered Prednisone)

All the benefits of the "predni-steroids" plus positive antacid action to minimize gastric distress.

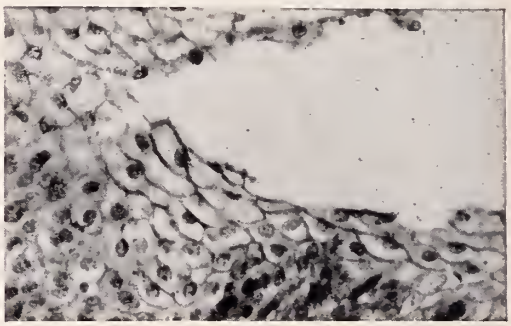
References: 1. Boland, E. W., *J.A.M.A.* 160:613, (February 25,) 1956. 2. Margolis, H. M. *et al, J.A.M.A.* 158:454, (June 11,) 1955. 3. Bollet, A. J. *et al, J.A.M.A.* 158:459, (June 11,) 1955.

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HOW VAGISEC LIQUID PENETRATES RECESSES OF VAGINA AND EXPLODES TRICHOMONADS OFTEN MISSED

Photomicrograph of section of epithelium of normal vaginal mucosa, enlarged 750 times, shows uneven surface where trichomonads hide. VAGISEC penetrates surface and explodes organisms in hard-to-reach areas.



TOO OFTEN AN ORDINARY trichomonacide fails to cure vaginal trichomoniasis because it has little or no effect on parasites that are not on the surface.[1] Trichomonads burrowed deeply into the roughened mucosa survive and set up new foci of infection. In fact, even a few hidden trichomonads remaining after treatment can cause acute exacerbations. With VAGISEC® liquid and jelly you can overcome this most troublesome problem.

Penetrates thoroughly — This new and unique trichomonacide spreads out and wets the entire vaginal surface. It rapidly dissolves mucinous materials, fats and blood clots.[1] It penetrates the cellular debris that lines the vaginal walls and shields the parasites, reaching trichomonads deep in their hiding places.

Explodes trichomonads — VAGISEC liquid actually explodes trichomonads within 15 seconds after douche contact.[2] Two surface-acting agents and one chelating agent combine to weaken the cell membrane, to remove the waxes and lipids, and to denature the protein. With its cell wall destroyed, the parasite imbibes water, swells and explodes. All this occurs within 15 seconds. Only scattered fragments remain.

Proves highly effective — With the Davis technique† you can now rid patients of "trich," even cases that have resisted other treatment. VAGISEC liquid was developed as "Carlendacide," by Dr. Carl Henry Davis, M.D., noted gynecologist and author, and C. G. Grand, research physiologist.[1] Clinical trials by more than 150 physicians show better than 90 per cent success.[3]

Use liquid and jelly — In the Davis technique, VAGISEC liquid is used in office therapy. At the same time, liquid and jelly are prescribed for home use. They are well tolerated, leave no messy discharge or stain.

Office treatment — Expose vagina with speculum and wipe walls dry with cotton balls. Then wash thoroughly with a 1:100 dilution of VAGISEC liquid. Remove excess fluid with cotton balls. Dr. Davis recommends six treatments.

Home treatment—Patient douches with VAGISEC liquid every night or morning and then inserts VAGISEC jelly. Home treatment is continued through two menstrual periods, but omitted on office treatment days. Douching contraindicated in pregnancy.

One course of treatment — "If the treatment has been accomplished as directed," the patient "will have no flagellates provided the infection was limited to the vaginal canal . . . A few women have infected cervical, vestibular or urethral glands and require other types of treatment."[4] Continued douching with VAGISEC liquid two or three times each week for eight to twelve weeks helps prevent re-infection.

Prevents coital re-infection — Infected husbands are ". . . a potential source of re-infection in wives successfully treated."[5] Prescribe for your patients the protection afforded by Schmid high quality prophylactics. Specify the superior RAMSES® rubber prophylactic, transparent, tissue-thin, yet strong. If there is anxiety that rubber might dull sensation, prescribe XXXX (FOUREX)® prophylactic skins, of natural animal membrane, pre-moistened.

Active ingredients in VAGISEC liquid: Polyoxyethylene nonyl phenol, Sodium ethylene diamine tetra-acetate, Sodium dioctyl sulfosuccinate. In addition, VAGISEC jelly contains Boric acid, Alcohol 5% by weight.

References: 1. Davis, C. H., and Grand, C. G.: Am. J. Obst. & Gynec. 68:559 (Aug.) 1954. 2. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955. 3. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955. 4. Davis, C. H. (Ed.): Gynecology and Obstetrics (revision), Hagerstown, W. F. Prior, 1955, vol. 3, chap. 7, pp. 23-33. 5. Lanceley, F., and McEntegart, M. C.: Lancet 1:668 (Apr. 4) 1953.

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The "quick 'n easy" of Low-Residue Diets

Starting with a can opener as key to this diet, your patient has a wide choice of unseasoned, strained or chopped foods. And these diet "do's" can guide him toward tempting, tasty dishes.

Vary the texture for taste appeal—

Consommé can be served hot with crisp croutons, or cold and jellied in shimmering peaks. Puréed vegetables folded into a well-beaten egg can be baked to a puff, or molded in gelatin. Finely chopped beef moistened with broth spreads for a sandwich—mixed with bread crumbs, it shapes into patties. Eggs can be soft or hard cooked by simmering—or scrambled in a double boiler.

Serve prettily for eye appeal—

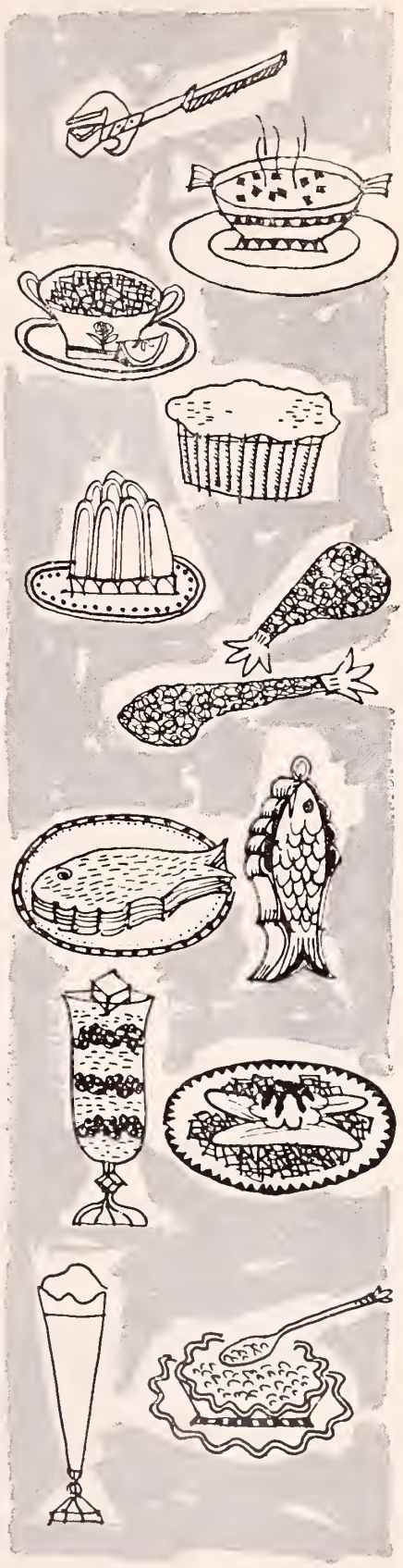
Chopped meat can be shaped like a chop—minced chicken like a drumstick—before baking. And flaked fish in lemon gelatin looks true to nature when your patient uses a mold.

White potatoes mashed with a little broth whip up creamy and light with cottage cheese. And mashed sweet potatoes made smooth with orange juice can be baked in the orange shells.

Banana split salad may tempt your patient. For the "greens," suggest lime gelatin shredded with a fork. Add a ball of cottage cheese to the split banana and top with puréed apricots.

Rice cooked in pineapple juice, water, and sugar makes a golden dessert. And for a gay parfait—alternate layers of farina pudding with puréed plums. Then put a sparkling cube of clear jelly on top.

Of course, you'll want to tell your patient just which foods you want him to have—and whether he can enjoy a glass of beer* along with his meals.



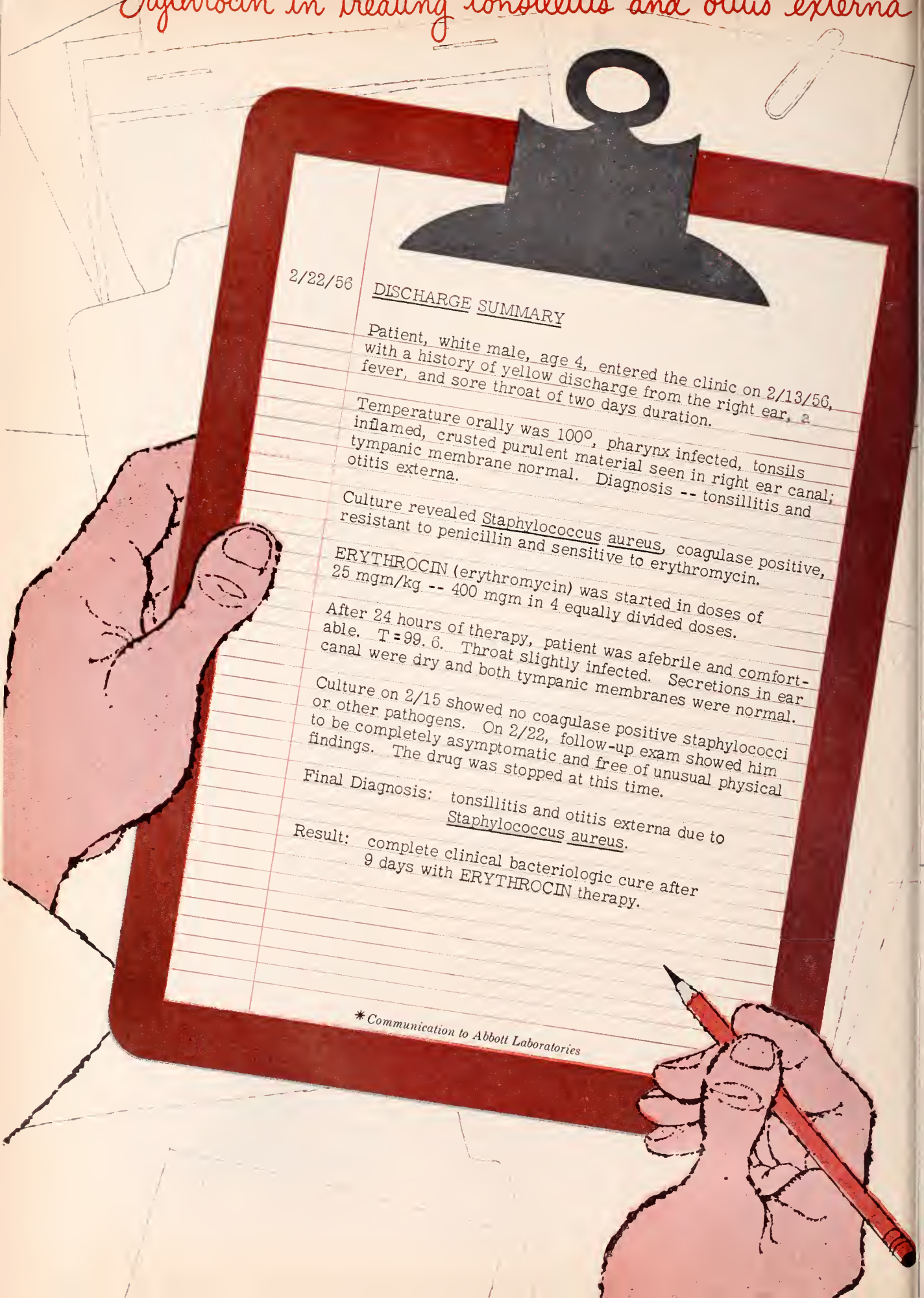
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Beer — America's Beverage of Moderation

*pH—4.3, 104 calories/8 oz. glass (Average of American Beers)

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Erythrocin in treating tonsillitis and otitis externa



2/22/56

DISCHARGE SUMMARY

Patient, white male, age 4, entered the clinic on 2/13/56, with a history of yellow discharge from the right ear, a fever, and sore throat of two days duration.

Temperature orally was 100°, pharynx infected, tonsils inflamed, crusted purulent material seen in right ear canal; tympanic membrane normal. Diagnosis -- tonsillitis and otitis externa.

Culture revealed Staphylococcus aureus, coagulase positive, resistant to penicillin and sensitive to erythromycin.

ERYTHROCIN (erythromycin) was started in doses of 25 mgm/kg -- 400 mgm in 4 equally divided doses.

After 24 hours of therapy, patient was afebrile and comfortable. T = 99.6. Throat slightly infected. Secretions in ear canal were dry and both tympanic membranes were normal.

Culture on 2/15 showed no coagulase positive staphylococci or other pathogens. On 2/22, follow-up exam showed him to be completely asymptomatic and free of unusual physical findings. The drug was stopped at this time.

Final Diagnosis: tonsillitis and otitis externa due to Staphylococcus aureus.

Result: complete clinical bacteriologic cure after 9 days with ERYTHROCIN therapy.

*Communication to Abbott Laboratories

"clinical response good or excellent"

In one recent study, 18 patients with acute follicular tonsillitis and septic sore throat, were given erythromycin. Infecting organism was *Str. pyogenes*. The investigator stated, "*In all 18, the clinical response could be regarded as either good or excellent.*"[1]

This, of course, is only one of many reports showing the effectiveness of ERYTHROCIN against coccic infections. You'll get the same good results (nearly 100% in common, bacterial respiratory infections) when your prescription reads *Filmtab* ERYTHROCIN Stearate.

"toxicity lower in erythromycin-treated patients"

After a study of 208 patients treated with erythromycin (78), procaine penicillin (78) and a placebo (52), the investigator stated: ". . . *the incidence of toxicity* (compared to procaine penicillin) *was significantly lower in the erythromycin-treated patients.*"[1]

Actually, ERYTHROCIN stands on a remarkable record of safety. After four years, there's not a single report of a severe or fatal reaction attributable to erythromycin. Also, allergic reactions rarely occur. *Filmtab* ERYTHROCIN Stearate (100 and 250 mg.), is available in bottles of 25 and 100, at all pharmacies.

Abbott

® Filmtab—Film sealed tablets, Abbott; pat. applied for.

1. Herrell, W. E., Erythromycin, Antibiotics Monographs, No. 1, p. 29, New York, Medical Encyclopedia, Inc., 1955.
Idem p. 30.

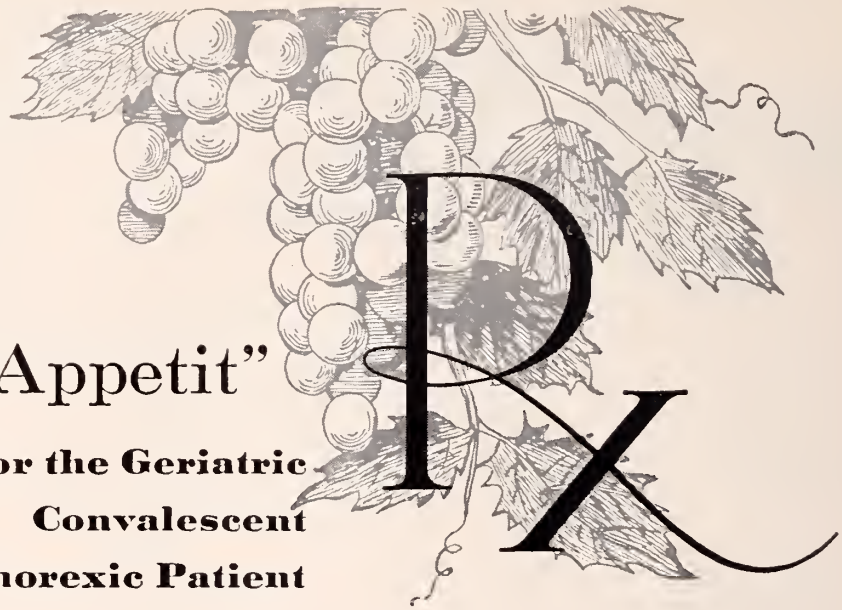
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611243



"Bon Appetit"

for the Geriatric Convalescent Anorexic Patient

Rx

Few substances compare with wine in its record of continuous use as an appetite stimulant, as a pleasant, nutritious adjuvant to the diet, and as a gentle medicinal agent.

Notably in the dietetic management of the aged, the convalescent and the post-surgical patient, wine has occupied a foremost position for generations—but it is only of recent times that its distinctive physiologic values and clinical rationale have been systematically studied and evaluated.

Thus it is now known that—



- wine stimulates olfactory acuity—markedly increasing appetite in anorexia
- wine serves as a quick-energy food. Its small amount of hexose is speedily absorbed and its moderate content of alcohol is metabolized readily even by diabetics
- wine possesses significant vasodilating, diuretic and relaxing properties of value in the field of cardiology
- a little Port or Sherry at bedtime is a valuable relaxant to the insomniac and may obviate the need for sedative medication

And wine can help brighten the often unappealing character of special or restricted dietaries—a psychological boost of inestimable value to the debilitated and depressed patient.

These and other research data of clinical interest are contained in the brochure "Uses of Wine in Medical Practice." A copy is available to you by writing: Wine Advisory Board, 717 Market Street, San Francisco, California.



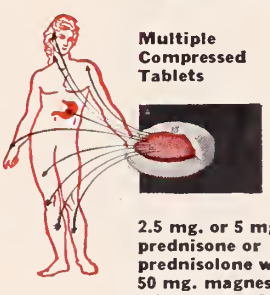
in inflammatory skin diseases



all the benefits of the "predni-steroids"
plus positive antacid action
to minimize gastric distress

ROUTINELY ACHIEVED WITH

'Co-Deltra'
(Buffered Prednisone)



Multiple Compressed Tablets

'Co-Hydeltra'
(Buffered Prednisolone)

2.5 mg. or 5 mg. prednisone or prednisolone with 50 mg. magnesium trisilicate and 300 mg. aluminum hydroxide gel.

Clinical evidence[1,2,3] indicates that to augment the therapeutic advantages of prednisone and prednisolone, antacids should be *routinely* co-administered to minimize gastric distress.

References: 1. Boland, E. W., *J.A.M.A.* 160:613, (February 25,) 1956. 2. Margolis, H. M. *et al*, *J.A.M.A.* 158:454, (June 11,) 1955. 3. Bollet, A. J. *et al*, *J.A.M.A.* 158:459, (June 11,) 1955.

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- relieves pain promptly
- reduces tension safely
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- maintains anacidity for hours
- controls hyperactivity of upper gastro-intestinal tract

MONODRAL with MEBARAL—the "psychovisceral stabilizer"—provides for patients with ulcer and gastro-intestinal spasm an effective barrier against the impact of environmental stimuli . . . controls gastric hypersecretion and hypermotility for three and one half to five hours.*

EACH TABLET CONTAINS:
MONODRAL bromide..... 5 mg.
MEBARAL.....32 mg.

DOSAGE: 1 or 2 tablets three or four times daily.
Available on prescription only.
Bottles of 100 tablets.

Winthrop Laboratories New York 18, N. Y.

Monodral (brand of penthienate) and Mebaral (brand of mephobarbital), trademarks reg. U. S. Pat. Off.
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...IN URINARY COMPLAINTS

- Sterilizes urine in 1 to 3 days
- Relieves burning in minutes
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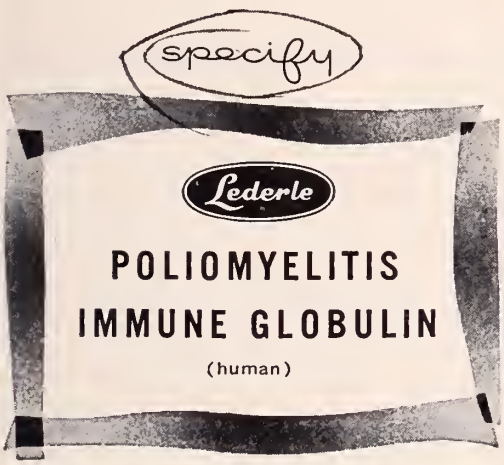
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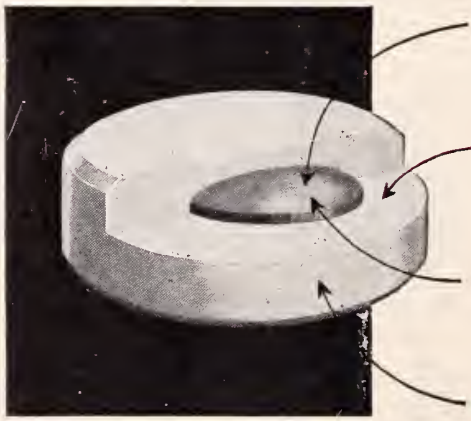
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* From Vol. X, No. 4, ACS *Cancer News*



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